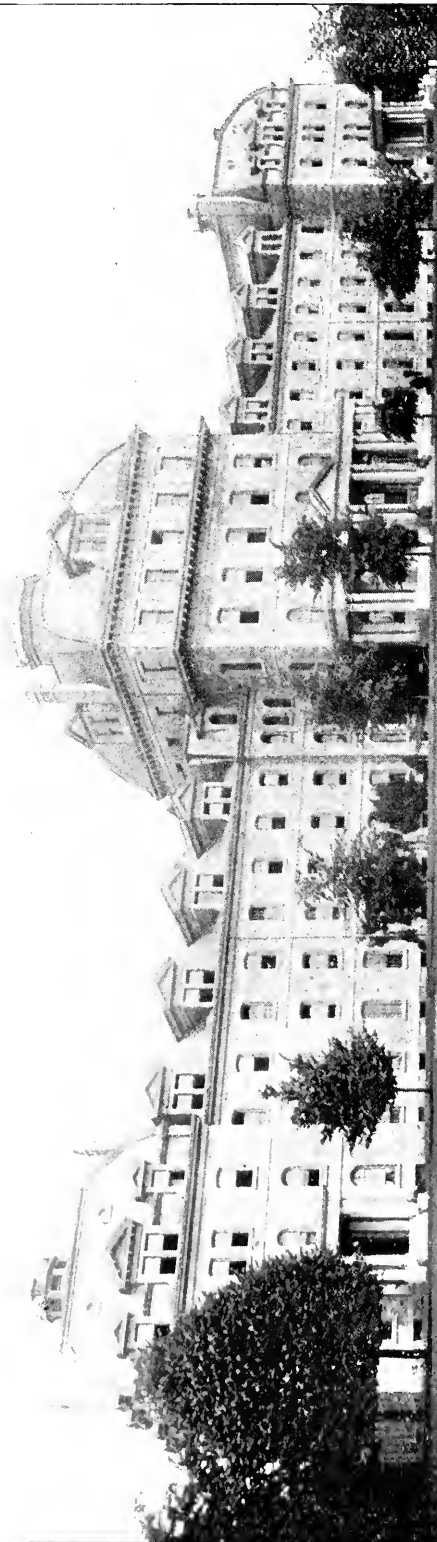


# SWARTHMORE COLLEGE.

1889-90.



SWARTHMORE COLLEGE.  
(MAIN BUILDING.)

Twenty-Fourth  
Annual Catalogue  
OF  
Swarthmore College

Swarthmore, Pa.

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1892-93.

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SWARTHMORE COLLEGE.  
(REAR VIEW OF MAIN BUILDING.)

# Calendar.

1892-93.

1892.	Ninth Month, 13th,	Third-day,	Meeting of the Board of Managers.
"	Ninth Month, 13th,	Third-day,	New Students arrive.
"	Ninth Month, 14th,	Fourth-day,	Examinations for Admission.
"	Ninth Month, 15th,	Fifth-day,	Old Students return.
"	Ninth Month, 16th,	Sixth-day,	Regular Exercises begin.
"	Eleventh Month, 23d,	Fourth-day,	Thanksgiving Recess begins.
"	Eleventh Month, 28th,	Second-day,	Students return.
"	Twelfth Month, 5th,	Second-day,	Meeting of the Board of Managers.
"	Twelfth Month, 6th,	Third-day,	<i>Annual Meeting of the Stockholders.</i>
"	Twelfth Month, 6th,	Third-day,	Meeting of the Board of Managers.
"	Twelfth Month, 21st,	Fourth-day,	Winter Recess begins.
1893.	First Month, 2d,	Second-day,	Students return.
"	First Month, 3d,	Third-day,	Regular Exercises begin.
"	Second Month, 4th,	Seventh-day,	First Semester ends.
"	Second Month, 6th,	Second-day,	Second Semester begins.
"	Third Month, 14th,	Third-day,	Meeting of the Board of Managers.
"	Third Month, 25th,	Seventh-day,	Spring Recess begins.
"	Fourth Month, 3d,	Second-day,	Students return.
"	Fourth Month, 28th,	Sixth-day,	Graduating Essays due from Senior Class.
"	Fifth Month, 29th,	Second-day,	Senior Examinations begin.
"	Sixth Month, 5th,	Second-day,	Senior Examinations completed, and the results announced.
"	Sixth Month, 12th,	Second-day,	Final Examinations begin.
"	Sixth Month, 16th,	Sixth-day,	} Examinations for Admission.
"	Sixth Month, 17th,	Seventh-day,	
"	Sixth Month, 19 h,	Second-day,	Meeting of the Board of Managers.
"	Sixth Month, 19th,	Second-day,	Class-Day Exercises.
"	Sixth Month, 20th,	Third-day,	COMMENCEMENT.
"	Ninth Month, 12th,	Third-day,	Meeting of the Board of Managers.
"	Ninth Month, 12th,	Third-day,	New Students arrive.
"	Ninth Month, 13th,	Fourth-day,	Examinations for Admission begin.
"	Ninth Month, 14th,	Fifth-day,	Examinations for Admission completed, and Old Students return.
"	Ninth Month, 15th,	Sixth-day,	Regular Exercises begin.
"	Eleventh Month, 22d,	Fourth-day,	Thanksgiving Recess begins at noon.
"	Eleventh Month, 27th,	Second-day,	Regular Exercises begin 8.30 A. M.
"	Twelfth Month, 4th,	Second-day,	Meeting of the Board of Managers.
"	Twelfth Month, 5th,	Third-day,	<i>Annual Meeting of the Stockholders.</i>
"	Twelfth Month, 5th,	Third-day,	Meeting of the Board of Managers.
"	Twelfth Month, 22d,	Sixth-day,	Winter Recess begins at noon.
1894.	First Month, 2d,	Third-day,	Students return.
"	First Month, 3d,	Fourth-day,	Regular Exercises begin.

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1892-93.

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HERBERT C. MODE . . . . .	<i>Engineering</i> . . .	Modena, Pa.
JOEL N. MORRIS . . . . .	<i>Engineering</i> . . .	Washington, D. C.
SAMUEL C. PALMER . . . . .	<i>Arts</i> . . . . .	Concordville, Pa.
ALFRED E. PFAHLER, . . . .	<i>Engineering</i> . . .	Swarthmore, Pa.
M. ELIZABETH POWNALL . . .	<i>Letters</i> . . . .	Christiana, Pa.
FRANK L. PRICE . . . . .	<i>Arts</i> . . . . .	Wilna, Md.
ARTHUR H. SCOTT . . . . .	<i>Science</i> . . . .	Swarthmore, Pa.
FRANK G. SHAVER . . . . .	<i>Science</i> . . . .	Pittsburgh, Pa.
JANE C. SHAW . . . . .	<i>Irregular</i> . . .	Williamsport, Pa.
ROSE C. SPENCER . . . . .	<i>Letters</i> . . . .	Havre de Grace, Md.
G. EDMUND STRATTAN . . . .	<i>Engineering</i> . . .	Altoona, Pa.
MARTHA T. VALENTINE . . .	<i>Letters</i> . . . .	Glen Head, N. Y.

Name.	Course.	Residence.
WILLIAM H. WANZER . . .	<i>Arts</i> . . .	Albany, N. Y.
EMMA A. WASLEY . . .	<i>Letters</i> . . .	Shenandoah, Pa.
ALLEN K. WHITE . . .	<i>Engineering</i> . .	Atlantic City, N. J.
CHARLES D. WHITE . . .	<i>Irregular</i> . . .	Atlantic City, N. J.
HOWARD WHITE, JR. . .	<i>Engineering</i> . .	Lansdowne, Pa.
ALICE P. WILLITS . . .	<i>Irregular</i> . . .	Syosset, N. Y.
ALBERT T. YARNALL . . .	<i>Letters</i> . . .	Yeadon, Pa.
MARY E. YEO . . .	<i>Science</i> . . .	Easton, Md.
SUSANNA S. YEO . . .	<i>Science</i> . . .	Easton, Md.
HARRY P. YOUNG . . .	<i>Engineering</i> . .	Morton, Pa.

## FRESHMAN CLASS.

Name.	Course.	Residence.
HAL N. AIKMAN . . .	<i>Engineering</i> . .	Fort Scott, Kansas.
ALICE L. BARNES . . .	<i>Irregular</i> . . .	Baltimore, Md.
MARY S. BARTRAM . . .	<i>Arts</i> . . .	London Grove, Pa.
CHARLES P. BEISTLE . . .	<i>Science</i> . . .	Germantown, Pa.
WALTER S. BELSINGER . .	<i>Engineering</i> . .	Savannah, Ga.
CLEMENT M. BIDDLE, JR. .	<i>Engineering</i> . .	Lansdowne, Pa.
LEOPOLD W. BIERWIRTH . .	<i>Engineering</i> . .	Dover, N. J.
WALTER D. BLABON . . .	<i>Irregular</i> . . .	Philadelphia, Pa.
EMILY T. BROOKE . . .	<i>Irregular</i> . . .	Media, Pa.
HILDEGARDE BROOKS . . .	<i>Irregular</i> . . .	Newburgh, N. Y.
EDWARD H. BUCKMAN . . .	<i>Irregular</i> . . .	Fallsington, Pa.
ALBERT L. BUFFINGTON . .	<i>Arts</i> . . .	Rising Sun, Md.
CAROLIEN H. CHAMBERS . .	<i>Arts</i> . . .	Unionville, Pa.
CHARLES CHANDLER . . .	<i>Engineering</i> . .	Bushnell, Ill.
WILLIAM B. CHAPIN . . .	<i>Engineering</i> . .	Washington, D. C.
BOUIC L. CLARK . . .	<i>Irregular</i> . . .	Sligo, Md.
ISAAC H. CLOTHIER, JR. . .	<i>Arts</i> . . .	Wynnewood, Pa.
GEORGE E. COOK . . .	<i>Engineering</i> . .	Philadelphia, Pa.
J. ROBERTS COX . . .	<i>Engineering</i> . .	Baltimore, Md.
M. LOUISE CURTISS . . .	<i>Letters</i> . . .	Woodside, Md.
FRANCES DARLINGTON . . .	<i>Arts</i> . . .	Glen Mills, Pa.
DE LANCEY W. DAY . . .	<i>Engineering</i> . .	Pylesville, Md.
CLAYTON DE COU . . .	<i>Irregular</i> . . .	Moorestown, N. J.
JOSEPH DE COU . . .	<i>Irregular</i> . . .	Trenton Junction, N. J.

Name.	Course.	Residence.
WALTER C. DE GARMO . . . .	<i>Arts</i> . . . .	Swarthmore, Pa.
DWIGHT DILWORTH . . . .	<i>Engineering</i> . . . .	Fort Scott, Kansas.
WILLIAM A. DIXON . . . .	<i>Letters</i> . . . .	Easton, Md.
GEORGE S. ESSIG . . . .	<i>Engineering</i> . . . .	Wallingford, Pa.
AIDA T. EVANS . . . .	<i>Arts</i> . . . .	Paoli, Pa.
GEORGE B. FERRIER, JR. . . .	<i>Engineering</i> . . . .	Moorestown, N. J.
EDGAR H. FIRTH . . . .	<i>Engineering</i> . . . .	Rockville Centre, N. Y.
CHARLES E. FOOKS . . . .	<i>Science</i> . . . .	Laurel, Del.
HARRIE H. FOUSE . . . .	<i>Engineering</i> . . . .	Philadelphia, Pa.
GEORGE C. FREEMAN . . . .	<i>Science</i> . . . .	Germantown, Pa.
LOUIS GARESCHÉ . . . .	<i>Irregular</i> . . . .	San José, Cal.
SYLVESTER S. GARRETT . . . .	<i>Science</i> . . . .	Swarthmore, Pa.
T. RUSSEL GLEIM . . . .	<i>Science</i> . . . .	Cornwall, Pa.
SARAH P. GODFREY . . . .	<i>Letters</i> . . . .	Jersey City, N. J.
JOSEPH V. GOODRICH . . . .	<i>Engineering</i> . . . .	Swarthmore, Pa.
MAUDE L. GRIDLEY . . . .	<i>Irregular</i> . . . .	Vineland, N. J.
JANE D. GROOT . . . .	<i>Irregular</i> . . . .	Springfield, S. Dakota.
ELLEN GUNTON . . . .	<i>Arts</i> . . . .	New York, N. Y.
S. LOUISA HAIGHT . . . .	<i>Irregular</i> . . . .	Sparta, Ontario, Can.
HALLIE H. HAINES . . . .	<i>Letters</i> . . . .	Rising Sun, Md.
VIOLETTE T. HAINES . . . .	<i>Arts</i> . . . .	Rising Sun, Md.
MARY E. HAWLEY . . . .	<i>Letters</i> . . . .	New Bloomfield, Pa.
CHARLES G. HODGE . . . .	<i>Science</i> . . . .	Washington, D. C.
IOLENE M. HOLLENSHEAD . . . .	<i>Arts</i> . . . .	Belvidere, Ill.
LEWIS E. HOLLINGSWORTH . . . .	<i>Irregular</i> . . . .	Jerusalem Mills, Md.
EMMA S. HUTCHINSON . . . .	<i>Letters</i> . . . .	Fordham Heights, N. Y.
SAMUEL JOHN . . . .	<i>Irregular</i> . . . .	Shamokin, Pa.
HOWARD C. JOHNSON . . . .	<i>Arts</i> , . . . .	Philadelphia, Pa.
CHARLES KAIGHN . . . .	<i>Engineering</i> . . . .	Eldridge, Florida.
MARY E. KLINE . . . .	<i>Letters</i> . . . .	Millville, Pa.
C. IRVIN LEIPER . . . .	<i>Engineering</i> . . . .	Swarthmore, Pa.
HARRY W. LEWIS . . . .	<i>Engineering</i> . . . .	Swarthmore, Pa.
MARY M. LEWIS . . . .	<i>Irregular</i> . . . .	Media, Pa.
MARIAN W. LITTLE . . . .	<i>Irregular</i> . . . .	Media, Pa.
ELIZABETH B. MILLER . . . .	<i>Arts</i> . . . .	Media, Pa.
ARABELLA E. MOORE . . . .	<i>Letters</i> . . . .	Philadelphia, Pa.
HARRY C. S. PARRISH . . . .	<i>Irregular</i> . . . .	Brooklyn, N. Y.

Name.	Course.	Residence.
PERCIVAL PARRISH . . . . .	<i>Science</i> . . . . .	Newport, R. I.
N. WILMER PLUMMER . . . . .	<i>Engineering</i> . . . . .	Frederick, Md.
LUCY B. PRICE . . . . .	<i>Arts</i> . . . . .	Media, Pa.
RICHARD W. RANDOLPH . . . . .	<i>Engineering</i> . . . . .	Media, Pa.
REGENA SCHAMBERG . . . . .	<i>Irregular</i> . . . . .	Philadelphia, Pa.
CHARLES A. SCHOOLEY . . . . .	<i>Engineering</i> . . . . .	Sparta, Ontario, Can.
M. GERTRUDE SCOTT . . . . .	<i>Irregular</i> . . . . .	Wayne, Pa.
J. CHAUNCEY SHORTLIDGE . . . . .	<i>Arts</i> . . . . .	Concordville, Pa.
LAURETTA T. SMEDLEY . . . . .	<i>Arts</i> . . . . .	Willistown Inn, Pa.
HELEN B. SMITH . . . . .	<i>Arts</i> . . . . .	Media, Pa.
HAROLD S. STANDISH . . . . .	<i>Irregular</i> . . . . .	Lima, Ohio.
FREDERIC B. THOMAS, . . . . .	<i>Irregular</i> . . . . .	Lima, Ohio.
JAMES L. VAIL . . . . .	<i>Irregular</i> . . . . .	Quakertown, N. J.
AGNES E. WALKER . . . . .	<i>Irregular</i> . . . . .	Manchester, Va.
FRANKLIN D. WALTON . . . . .	<i>Arts</i> . . . . .	London Grove, Pa.
MARION G. WAY . . . . .	<i>Irregular</i> . . . . .	New London, Pa.
HARRY B. WEBB . . . . .	<i>Engineering</i> . . . . .	City of Mexico, Mexico.
EDITH WILDER . . . . .	<i>Letters</i> . . . . .	Johnson City, Tenn.
LUESSA WRIGHT . . . . .	<i>Arts</i> . . . . .	Port Chester, N. Y.

## SUB-COLLEGIATE CLASS.

Name.	Residence.
WILLIAM H. BRADY . . . . .	Middletown, Del.
OLIVER CROMWELL . . . . .	Clark's Green, Pa.
ALFRED KAPPELER . . . . .	Washington, D. C.
BERTON M. LAWHEAD . . . . .	Morgantown, West Va.
RICHARD B. MARSHALL . . . . .	Swarthmore, Pa.
MAUD MATTESON . . . . .	Roslyn, N. Y.
WALKER MATTESON . . . . .	Roslyn, N. Y.
SAMUEL RIDDLE . . . . .	Media, Pa.
IDA RAE STEELMAN . . . . .	Clayton, N. J.
HORACE TEMPLE . . . . .	Ward, Pa.

## Summary.

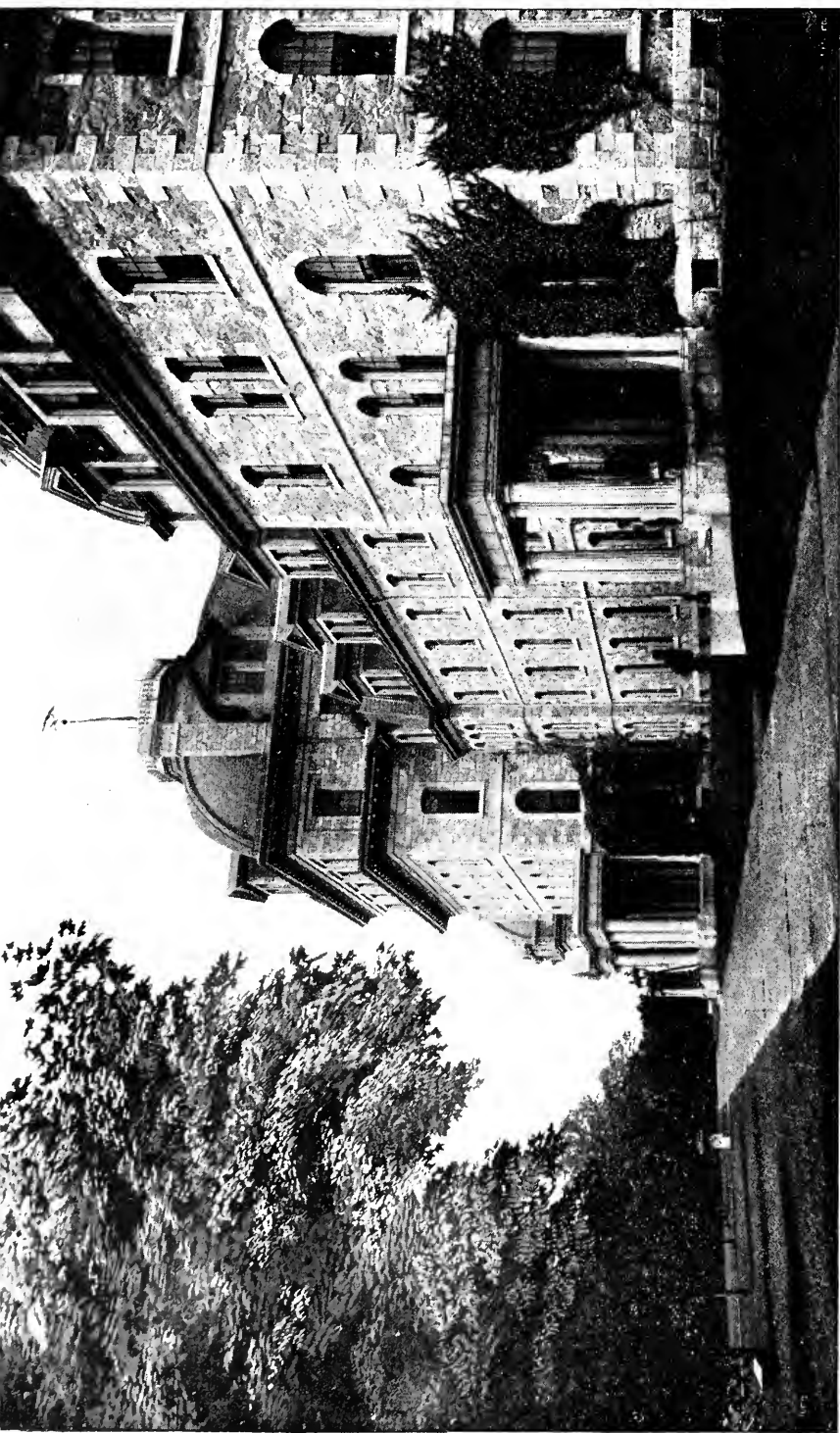
Seniors . . . . .	23
Juniors . . . . .	38
Sophomores . . . . .	50
Freshmen . . . . .	80
Sub-Collegiates . . . . .	10
Total . . . . .	<hr/> 201

## Summary by States.

Pennsylvania . . . . .	88
Maryland . . . . .	27
New Jersey . . . . .	27
New York . . . . .	19
Delaware . . . . .	7
Ohio . . . . .	5
Illinois . . . . .	3
Virginia . . . . .	3
Kansas . . . . .	2
New Mexico . . . . .	2
Tennessee . . . . .	2
California . . . . .	1
Colorado . . . . .	1
Florida . . . . .	1
Georgia . . . . .	1
Maine . . . . .	1
Minnesota . . . . .	1
Rhode Island . . . . .	1
South Dakota . . . . .	1
West Virginia . . . . .	1
District of Columbia . . . . .	4
Canada . . . . .	2
Mexico . . . . .	1
Total . . . . .	<hr/> 201







SWARTHMORE COLLEGE.  
(MAIN BUILDING LOOKING WEST.)

## General Information.

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### Buildings and Grounds.

*Swarthmore College* was founded in 1864 by members of the religious Society of Friends, to provide the children of the Society and others with opportunities for higher education under guarded care. With this object in view, a property of two hundred and forty acres was secured, ten miles from Philadelphia, on the Central Division of the Philadelphia, Wilmington, and Baltimore Railroad. It is accessible by trains from the Broad Street Station, twenty-four times daily. About half the land is used for farming purposes, providing milk and vegetables for the College; the remainder is devoted to lawn and pleasure grounds. Crum Creek, which forms the western boundary of the property, affords facilities for boating, bathing, and skating. The portion of the grounds bordering the stream is of great picturesque beauty. The building site is high, securing perfect drainage and pure air and commanding a fine view of the surrounding country for many miles.

*The Principal College Building* is a massive stone structure 348 feet long. It consists of a central building, five stories high, containing public rooms, such as lecture-rooms, museum, library, reading-rooms, parlors, dining-hall, etc. Fire-proof compartments separate this building from the two wings. The latter are each four stories high. The ground-floors are devoted to lecture and recitation-rooms; the remaining floors in the east wing contain the dormitories of the young women, and in the west wing those of the young men. A number of the instructors reside in the same building with the students, and the relations between them are such that there is comparative freedom from the dangers and temptations ordinarily incident to college life. The buildings are heated throughout by steam, lighted by gas, and thoroughly ventilated.

*The Science Hall* is constructed of stone, in the most durable manner, and was planned with special reference to the work of stu-

dents in Engineering, Physics, and Chemistry. It has a frontage of 130 feet, and a depth of 64 feet. The basement contains the testing laboratory, the wood-working shop, the blacksmith shop, and the foundry of the engineering department, and store-rooms. On the first floor are the machine shop and engineering lecture-room, and the chemical and physical laboratories, and on the second floor are the draughting-rooms and the chemical lecture-room.

*The Astronomical Observatory* is especially arranged for purposes of instruction. The plan embraces a central building supporting the dome, and two wings. There are four rooms: a transit-room, in which is placed an instrument of three-inch aperture, also the mean-time clock; a pier-room, at present utilized as a sidereal-clock room; a work-room in which is placed a small library of reference books, the chronograph and chronometer; and the dome, containing the equatorial of six-inch aperture. In connection with this latter instrument, there is a micrometer and a spectroscope. The transit and equatorial were constructed by Warner & Swasey, of Cleveland, and the spectroscope by Brashear, of Allegheny. The equipment is ample for class-work. Connected with the observatory is the Signal Service Station of the State Weather Bureau, fully provided with the necessary meteorological and other apparatus.

*Other Buildings* are a meeting-house, the President's house, the West house (birthplace of Benjamin West, now used as a professor's residence), the house of the Professor of Astronomy, the Farmer's house and commodious farm-buildings, the laundry and bakery, and the boiler-house, containing the sectional boilers for heating and cooking purposes. All these buildings are constructed of stone.

## Libraries and Reading-Room.

*The Libraries* of the College collectively contain 15,517 bound volumes, as follows:

The General Library . . . . .	10,333
Literary Societies' Library . . . . .	3,414
Friends' Historical Library . . . . .	1,770

Members of the Senior Class are permitted, under proper regulations, to consult the Philadelphia Library, containing 145,000 vol-

umes, and the Mercantile Library, containing 150,000 volumes, as well as the valuable special and technical Libraries in the city of Philadelphia. The General Library is at all times accessible to students. The Librarian will aid students in consulting the Library and in arranging courses of reading.

*Friends' Historical Library*, founded by the late Anson Lapham, of Skaneateles, N. Y., consists of a valuable collection of Friends' books, photographs of representative Friends, and manuscripts relating to the Society and its history, and is, upon application to the Custodian, accessible to all persons interested in the doctrines and history of Friends. This collection is stored in a fire-proof apartment, and it is hoped that Friends and others will deem it a secure place in which to deposit books and other material in their possession which may be of interest in connection with the history of the Society. Such contributions as well as additional funds for its growth and maintenance are solicited, and should be addressed to "Friends' Historical Library, Swarthmore, Pa."

*The Reading-Room* is supplied with the leading literary and scientific journals and the prominent newspapers of the principal cities.

*Literary Societies* are maintained by the students. There are two for young men and one for young women. These hold regular meetings for the reading of essays, etc., and for practice in debate. Their Libraries, under their own management, contain over three thousand volumes and are accessible to all students.

## The Gymnasium.

The *Gymnasium* is supplied with a full set of apparatus for exercising according to the system of Dr. Sargent. The exercises are conducted in separate classes for the young men and young women, and are required of all.

*Students are requested to bring from home a physician's certificate, if there is any cause that would make it dangerous for them to take part in the exercises required.*

A large room in the main building also is set apart for the exercises of the young women.

The extensive and beautiful grounds connected with the College invite to out-door exercise, which is encouraged by the authorities.

On the highest and driest part of the campus, a space has been prepared for athletic games, with a quarter-mile cinder running-track, and a well-graded field for foot-ball and base-ball, whilst the surrounding country offers facilities for cross-country running.

## General Regulations.

*Religious Exercises.*—While care is taken to inculcate the doctrine that religion is a matter of practical daily life, and is not confined to the observance of set forms or the promulgation of religious tenets, the regular assembling for religious purposes is carefully observed. On First-day morning, a religious meeting is held, attended by students, teachers, members of the household, and Friends of the neighborhood. The meeting is preceded by First-day school exercises, consisting of the recitation of passages of Scripture prepared by members of the different classes, and the reading of a portion of Scripture. The daily exercises are opened by a general meeting for reading selected portions of Scripture or other suitable books, and for imparting such moral lessons as circumstances seem to require, followed by a period of silence before entering upon the duties of the day.

Permission to leave the College grounds will be granted or refused according to the written request of the parents. In the absence of such request the Faculty will exercise its own discretion in the matter.

Students may be visited on week-days, by parents or guardians or near relatives, or by others approved by parents or guardians; but general visiting is discouraged. *Students must not be interrupted in their studies or recitations at any time, nor must they be visited on First-day.*

All persons who are interested in education, and who are desirous of examining the methods of instruction and discipline at Swarthmore, will be welcomed at any time, and should, when convenient, communicate with the President upon the subject in advance.

*The use of Tobacco being strictly prohibited, those addicted to its use, unless prepared to renounce it entirely, should not apply for admission.*

*Commencement and Vacations.*—The College year begins on the

second Third-day of Ninth month, and closes with Commencement-day, which occurs on the third Third-day of Sixth month.

Students are not admitted for a period less than the current College year; but, when vacancies exist, they may enter at any time during the year.

Besides the summer vacation, there will be a recess of about ten days at the close of the Twelfth month, one week in the Third month, and three days at Thanksgiving. (See Calendar.)

Students are permitted to remain at the College, under care, during the recesses, but not during the summer vacation.

*The Household.*—In the organization of this institution, unusual care has been extended to the personal comfort and the social interests of the students. This department is in charge of the Dean, with able assistants. She has also special oversight of the conduct and health of the young women, and parents are desired to communicate freely with her in regard to the welfare of their daughters.

## Expenses.

The cost of Board and Tuition is \$450 per year, of which \$250 is payable in advance, and \$200 on the first of First month.

*For Day Students*, the price is \$200 per year, of which \$100 is payable in advance, and the remainder on the first of First month. The day students take lunch with the resident students.

Students purchase their own books, which the College will furnish at the lowest obtainable rates. They also buy their own stationery, drawing implements, and certain tools and materials used in the workshops, and pay at a reasonable rate for laundry work done at the College. Students taking laboratory courses will make a deposit of \$10 at the beginning of the course to cover the expense of the material used. The unexpended balance will be returned at the end of the course.

*In case of illness*, no extra charge is made unless a physician be employed.

The above figures may be depended upon as covering all necessary expenses.

## Payments.

Payments are to be made by check or draft to the order of

ROBERT BIDDLE, Treasurer,

NO. 507 COMMERCE STREET, PHILADELPHIA.





Map  
of  
**SWARTHMORE COLLEGE**  
CAMPUS and FARM

22603 ACRES.



WOODS

SWARTHMORE

- 1. New Year College Building
- 2. Old 1911 Building (formerly Lawrence)
- 3. Hall of Music
- 4. Laboratory of Physical Science
- 5. Main Office
- 6. Library Building
- 7. Gymnasium
- 8. College Program Library
- 9. Student Quarters
- 10. Main House
- 11. Chapel
- 12. New Hall
- 13. Quarters for Women Students
- 14. New House

## Introductory.

The studies required for a Degree extend over four years. The requirements for admission are intended to be such as Friends' schools generally can meet. Owing to the enforcement of regular hours for study, and the absence of all opportunity for dissipation, the amount accomplished in four years is large, and is believed to afford a sufficient preparation in classics, science, and general culture for the ordinary avocations of life, for the study of any of the learned professions, or for the pursuit of special courses in the higher universities.

### Time and Conditions of Admission.

To secure places, application for admission should be made as early as possible by letter to the President.

All applicants must submit satisfactory testimonials of good character from their last teachers, and students coming from another college must present certificates of honorable dismissal.

The examinations for admission may be taken either in the summer at the close of the college year, or in the fall. The times are as follows for the year 1893.

### Summer Examinations, 1893.

Sixth-day,	Sixth	Month	16th,	at	8.15	A.M.	. Mathematics.
"	"	"	"	"	10.30	A.M.	. English.
"	"	"	"	"	11.30	A.M.	. Geography.
"	"	"	"	"	2.00	P.M.	. History.
"	"	"	"	"	3.00	P.M.	. Latin.
"	"	"	"	"	4.00	P.M.	. Greek.
Seventh-day,	"	"	17th,	at	8.15	A.M.	. Physical Geography.
"	"	"	"	"	9.15	A.M.	. German.
"	"	"	"	"	10.15	A.M.	. French.

## Fall Examinations, 1893.

Candidates should present themselves at the College on the afternoon of Third-day, Ninth month 12th, 1893.

The Examinations will occur as follows :

Fourth-day, Ninth Month 13th,	8.15 A.M. . Mathematics.
“ “ “ “	10.30 A.M. . English.
“ “ “ “	11.30 A.M. . Geography.
“ “ “ “	2 P.M. . History.
“ “ “ “	3 P.M. . Latin.
“ “ “ “	4 P.M. . Greek.
Fifth-day, Ninth Month 14th,	8.15 A.M. . Physical Geography.
“ “ “ “	9.15 A.M. . German.
“ “ “ “	10.15 A.M. . French.

Students are also admitted at any time during the year, and are charged for the unexpired time until the close of the year.

## Requirements for Admission.

All candidates for admission to the Freshman Class will be examined in the following subjects :

1. MATHEMATICS.—*Arithmetic*.—Entire.

*Algebra*.—Through Equations of the second degree.

*Geometry*.—The whole of Plane Geometry.

2. ENGLISH.—The candidate will be asked to write a few pages upon some assigned subject, or from dictation. This exercise will be examined with reference to Grammar, Spelling, Paragraphing, Punctuation, and the use of Capitals. An examination will also be given in the principles of the grammar.

3. HISTORY.—A thorough preparation in the outlines of the history of the United States and of England. The amount required in each subject being equivalent to what is contained in the following text-books : Scudder's or Eggleston's *School History of the United States*, and Gardiner's *School History of England*, or Edith Thompson's *History of England* (Freeman's Historical Series).

4. GEOGRAPHY.—The general facts of Physical, Descriptive, and Political Geography, especially of the United States and Europe.

5. In addition to the above, candidates will be examined as follows:

(1) *For the Classical Course in*

\* LATIN.—Cæsar, Gallic War, four books; Virgil's *Æneid*, six books; Collar's Latin Composition.

GREEK.—Greek Grammar (Goodwin's recommended); elementary Greek Composition; Xenophon—Four books of the *Anabasis*; Homer—Three books of the *Iliad*; General History of Greece to the death of Alexander.

For candidates who pass a satisfactory examination in the above, Greek will be *elective* after the Sophomore year.

Candidates for the Classical Course who present no Greek will be required to pursue the study during the *entire four years* of college—a class for beginners being formed in the Freshman Year.

(2) *For the Literary Course*, in English Literature and in French or German,† as follows:

ENGLISH LITERATURE.—Candidates are expected to be familiar with Longfellow's *Tales of a Wayside Inn*, Lowell's *Vision of Sir Launfal*, Irving's *Sketch Book*, Whittier's *Tent on the Beach*, Hawthorne's *House of the Seven Gables*, and to write a short composition upon a subject taken from one of these works.

FRENCH.—*French Grammar*.—Inflections of regular verbs and auxiliaries; forms of articles, nouns, adjectives, and pronouns; common irregular verbs; general principles of Syntax. Super's *Preparatory French Reader*; varied selections (*entire*); *dictées*.

GERMAN.—Otto's *Shorter Course in German Grammar* entire or equivalent. Reading of *Aus Meiner Welt*, Grimm's *Märchen*, German Ballads, *Der Neffe als Onkel*; memorizing of easy selections.

(3) *For the Engineering Course*, in English Literature and in French or German,† as above.

(4) *For the Science Course*, in English Literature and in French or German,† as above.

Students applying for admission into the Freshman Class who may be found unable to meet all requirements, will be afforded an opportunity of completing their preparation by entering the recently

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\* This will be the requirement for admission to the Freshman Class of 1893-4. Thereafter, students entering the Course in Arts must offer seven orations of Cicero (including those against Cataline) in addition to the Cæsar, Virgil, and Latin Composition heretofore required. For three books of the *Æneid*, a corresponding amount of Ovid and of Virgil's *Bucolics* will be accepted as an equivalent.

† Latin will be accepted as an equivalent for French or German for admission to this Course.

established Sub-Collegiate Class. This privilege will, however, be accorded to those only who shall be able to complete such preparation in a period not longer than one year.

*Admission Without Examination.*—Graduates of the following Schools are admitted to the Freshman Class without examination upon presenting regular certificates properly filled up by the Principals of the Schools named.\*

Friends' Central School, . . . . .	Philadelphia, Pa.
Friends' Seminary, . . . . .	New York, N. Y.
Friends' High School, . . . . .	Baltimore, Md.
Woodstown Academy, . . . . .	Woodstown, N. J.
Friends' School, . . . . .	Wilmington, Del.
Friends' High School, . . . . .	West Chester, Pa.
Friends' High School, . . . . .	Moorestown, N. J.
Buckingham Friends' School, . . . . .	Lahaska, Pa.
Friends' Academy, . . . . .	Locust Valley, L. I.
Friends' Select School, . . . . .	Washington, D. C.
Sherwood School, . . . . .	Sandy Spring, Md.
Friends' School, . . . . .	Kennett Square, Pa.
Providence Preparative Meeting School, . . . . .	Media, Pa.
Oakland Boarding School, . . . . .	Fallston, Md.
Friends' Normal Institute, . . . . .	Rising Sun, Md.
Abington Friends' School, . . . . .	Jenkintown, Pa.

Blank certificates will be furnished each year to the Principals of these preparatory Schools and to such private teachers as may be named for the privilege. The right is reserved, however, to withdraw from such School or teacher the privilege of sending pupils into College on certificates.

Pupils from these Schools intending to enter the College, should apply by letter for places as soon as convenient after the completion of their preparation. They should present themselves at the College on Fifth-day, Ninth month 14th, 1893.

Principals of other Schools who wish to have students admitted on their recommendation, should correspond with the President concerning each case.

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\*Other Friends' Schools may on application be added to this list, if the Faculty and Instruction Committee shall be satisfied that they are taught by competent teachers and are furnishing the requisite preparation for admission.

*Examination for Higher Classes.*—Candidates for classes higher than the Freshman Class must pass satisfactorily in all the subjects pursued by the lower class or classes; and students coming from other Colleges must present letters of honorable dismissal and must show that they have pursued courses of study equivalent to those taken by the classes they wish to enter.

*The Sub-Collegiate Class.*—In consequence of the action of the Board of Managers at a meeting held Twelfth month 2d, 1889, the Preparatory School was formally abolished, its existence terminating at the close of the academic year, 1889-90. Instead of the Preparatory School, a class to be known as the Sub-Collegiate Class was established to afford students who are not at the time of application sufficiently advanced to enter the Freshman Class, an opportunity for making up their deficiencies, provided that this can be accomplished in a period not greater than one year.

Candidates for admission to the Sub-Collegiate Class will be examined in the following subjects:

1. MATHEMATICS.—*Arithmetic.*—Entire. *Algebra.*—To Quadratic Equations.
2. ENGLISH.—Composition; Grammar.
3. HISTORY.—A thorough preparation in the outlines of the history of the United States and of England. The amount required in each subject being equivalent to what is contained in the following text-books: Scudder's or Eggleston's School History of the United States, and Gardiner's School History of England, or Edith Thompson's History of England (Freeman's Historical Series).
4. GEOGRAPHY.—The general facts of Descriptive and Political Geography, especially of the United States and Europe.
5. \*LATIN.—(Required of students in Arts.) Cæsar, Gallic War, two books; Virgil's *Æneid*, one book; Grammar, Paradigms and simplest Case-constructions.

*Partial Courses of Study.*—A limited number of teachers and other persons of fair education and of sufficiently mature age who may wish to improve themselves in particular studies, will be received without examination, and allowed to elect, in any of the regular classes, such work as they can pursue to advantage. They should in all cases correspond with the President in advance.

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\* This requirement is for admission to Sub-Collegiate class in Ninth month, 1893. Thereafter students entering the Course in Arts must offer *four* books of Cæsar's Gallic War, and *five* books of Virgil's *Æneid*. For *two* books of the *Æneid*, a corresponding amount of Ovid and of Virgil's *Bucolics* will be accepted as an equivalent.

# Courses of Instruction.

ALPHABETICALLY ARRANGED.

For required and elective studies, and the number of exercises per week in each, see pages 53-56.

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## Biology and Geology.

SPENCER TROTTER, *Professor*; JOHN C. GIFFORD, *Instructor*.

The subjects are arranged to form a graded course throughout the four College years. The purpose of the studies is to train students in the right methods of thinking and the interpretation of the facts and problems continually presented to them by natural objects.

Lectures, demonstrations, and text-books are employed in connection with field and laboratory work. The Course, complete from the beginning of the Freshman to the end of the Senior Year, *is required of all Science students.*

The Course is arranged as follows:

### FRESHMAN CLASS.

Three hours weekly.

*Required of Science Students.*—Elements of Biology.

*Text-books.*—Orton's "Comparative Zoology;" Trotter's "Abstract of Zoology;" translation of Duchartre's "Elements de Botanique."

### SOPHOMORE CLASS.

Three hours weekly.

*Required of Science, Arts and Letters Students.*—Elements of Biology.

*Text-books.*—"Orton," Trotter's "Abstract."

### JUNIOR CLASS.

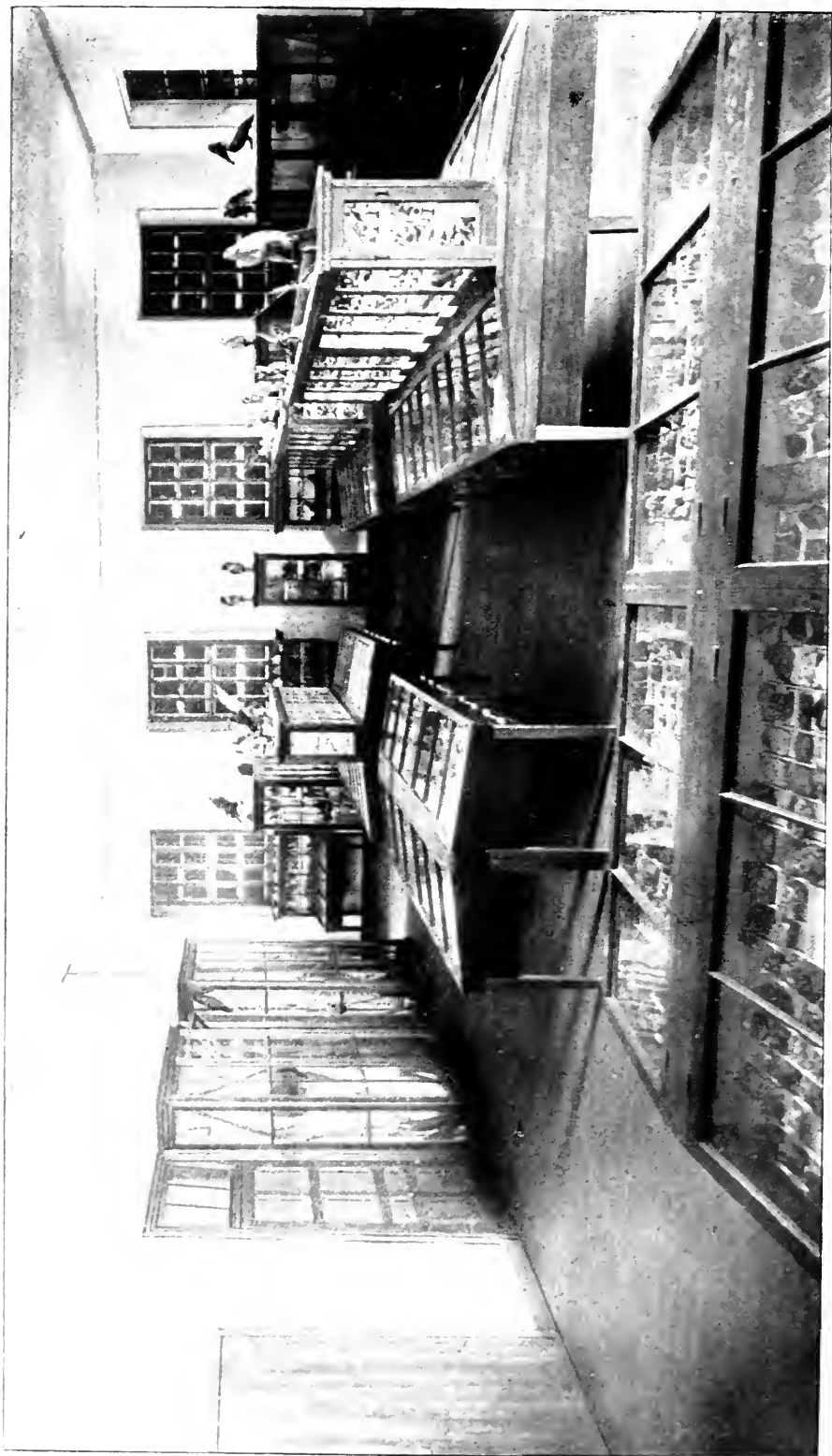
Two afternoons (six hours) weekly.

1. Study of the animals and plants causing disease.

(30)







2. Morphology and Physiology of a high form of animal. Text-books.—Mivart, "The Cat;" Huxley & Youman's "Physiology."
3. Embryology and Histology.

## SENIOR CLASS.

Three hours weekly.

*First Semester.*—Agricultural Science, embracing a study of soils, Plant Physiology, Economic Entomology, Economic Mycology, and Forestry.

*Second Semester.*—Geology. Text-book, Le Conte's "Elements." *Required of all Senior Students.*

*Independent Work.*—Preparation and writing of a thesis on some biological and geological subject.

Time for work to be arranged with the Professor.

## The Museum.

*The Museum* of the College is strictly a teaching collection, and the specimens from its cases are in constant use in the lectures and laboratories in Natural History; it is growing steadily, but always in the direction of rendering more perfect the means of illustrating the different departments of natural history, and with no intention of making it a collection of curiosities or miscellaneous articles, however interesting they may be in their way.

It includes the following collections:

1. The *Joseph Leidy Collection of Minerals*, the result of thirty years' discriminative collecting by its founder, occupies four large double cases, and consists of exceedingly choice cabinet specimens of crystallized minerals, characteristic rocks and ores, and transparent and opaque models of the various systems of crystallization.
2. The *Collection of Comparative Osteology* consists of a large series of partial and complete skeletons, prepared at Prof. Henry Ward's Natural History Establishment, in Rochester, N. Y., and illustrating the structure and framework of backboneed animals.
3. The *Wilcox and Farnum Collection of Birds* comprises four large double cases of stuffed specimens of native and foreign birds. Nearly all the species visiting this State are represented.
4. The *Frederick Kohl Ethnological Collection* consists of two

cases of Indian implements, weapons, clothing, etc., mostly from Alaska.

5. The *C. F. Parker Collection of Shells* is made up of six large cases of choice typical land, fresh water, and marine shells. These specimens were all selected by the Curator from the extensive collection of the late C. F. Parker, and render further additions to this branch needless. The founder of this collection was for many years the Curator in charge of the Academy of Natural Sciences of Philadelphia.

6. The *Robert R. Corson Collection of Stalactites, Stalagmites, and Helictites*, represents the celebrated Luray Caverns, and illustrates the limestone formations which render these caverns the second in magnificence in the world.

7. The *Eckfeldt Herbarium* consists of over two thousand plants, illustrating the flora of Pennsylvania.

In addition to the above, there is a large and constantly increasing collection of stuffed and alcoholic specimens of vertebrates and invertebrates (including the U. S. Fish Commission Educational Collection), of dissected specimens for demonstration in the lectures on Physiology and Hygiene, glass and papier-maché models of invertebrates and of special points in vegetable and animal morphology, besides some three hundred classified diagrams and finely colored charts illustrating every branch of natural history.

## Chemistry.

WILLIAM C. DAY, *Professor*; STEWART W. YOUNG, *Assistant*.

The course of instruction in this subject extends over a period of four years, and aims to impart a thorough understanding of the most essential facts and principles of the science, while special attention is given to the cultivation of systematic habits of manipulation, so that, besides possessing value as part of a liberal education, it forms a foundation for such pursuits in life as require this knowledge.

Those who may desire to continue their work beyond the limits of the regular course will have suitable work assigned them, and will find every facility for carrying it on.

The *Chemical Laboratory* occupies rooms in Science Hall. It includes a room for work in general Chemistry and Qualitative Analy-





CHEMICAL LABORATORY.

sis, one for Quantitative Analysis, and a basement room for Assaying and Metallurgy. Near to these are store-rooms, a balance-room, and a lecture-room. The Laboratory tables are covered with glazed tiles; fume-closets, suction for filtration, water and gas are provided. The lecture-room, with a seating capacity of one hundred, is furnished with water, gas, fume-closets, and abundant apparatus for lecture purposes. For lecture illustration, there is an excellent collection of the metals and their salts, and a cabinet of minerals (deposited by Hugh Foulke); in addition to these, there is a complete set of typical preparations for use in the course in Organic Chemistry.

*Chemical Library.*—In all cases students are encouraged in the habit of consulting for themselves the best authorities; and in a room near to the Laboratory there will be found a number of standard works on Chemistry; among them may be mentioned Watt's "Dictionary of Chemistry," Roscoe and Schorlemmer's "Treatise on Chemistry," besides numerous other works on technical and analytical chemistry, and current chemical journals.

*Text-Books.*—As the student advances in the course the following text-books are used: "Elementary Chemistry," Remsen; "Introduction to Qualitative Analysis," Beilstein; "Introduction to the Study of the Compounds of Carbon," Remsen; "Quantitative Chemical Analysis," Fresenius; "Theoretical Chemistry," Remsen.

#### FRESHMAN CLASS.

*a. Lectures (Experimental).*—General Elementary Chemistry (non-metals and metals), with examinations.

*b. Laboratory Work.*—Special exercises on topics previously discussed in the lectures.

#### SOPHOMORE CLASS.

*a. Lectures.*—Theoretical Chemistry, followed by Qualitative Analysis.

*b. Laboratory Work.*—Qualitative followed by Quantitative Chemical Analysis.

#### JUNIOR CLASS.

*a. Lectures.*—Chemistry of the compounds of carbon.

*b. Laboratory Work.*—Quantitative Analysis, followed by a number of exercises in important, typical, organic transformations.

## SENIOR CLASS.

The course during this year consists largely of laboratory work. A few special subjects are given to each student, with the understanding that he is to fulfill the practical and theoretical requirements of these subjects in a complete, exhaustive, and scholarly manner. Such work will involve the study of technical works and a number of the current chemical journals. Meetings will occasionally be held for the consideration of important researches, as they appear from time to time in the journals.

## Drawing and Painting.

BEATRICE MAGILL, *Instructor.*

A course of Freehand Drawing and Painting is open to all. Aside from its intrinsic value as a means of culture, it leads to habits of close observation, and is a very important adjunct to the other courses, especially to those of Engineering and Science.

It consists of drawing from objects and casts, and painting from still-life, flowers, etc., and a series of lectures on Practical Perspective and the History of Painting. A Sketch Class is open to the students qualified to work in it. It is held one afternoon a week for out-door sketching in the Spring and Autumn, and during the Winter-time sketches are made in the studio from casts and still-life, in color and light and shade.

FRESHMAN CLASS.—(*Extra*), *four periods a week, counting as two.*

Drawing from geometrical objects; cast, ornament, still-life.

SOPHOMORE CLASS.—(*Extra*), *four periods a week.*

Drawing from cast, details of figure.

Painting from still-life.

JUNIOR CLASS.—(*Extra*), *four periods a week.*

Drawing from cast, details of figure.

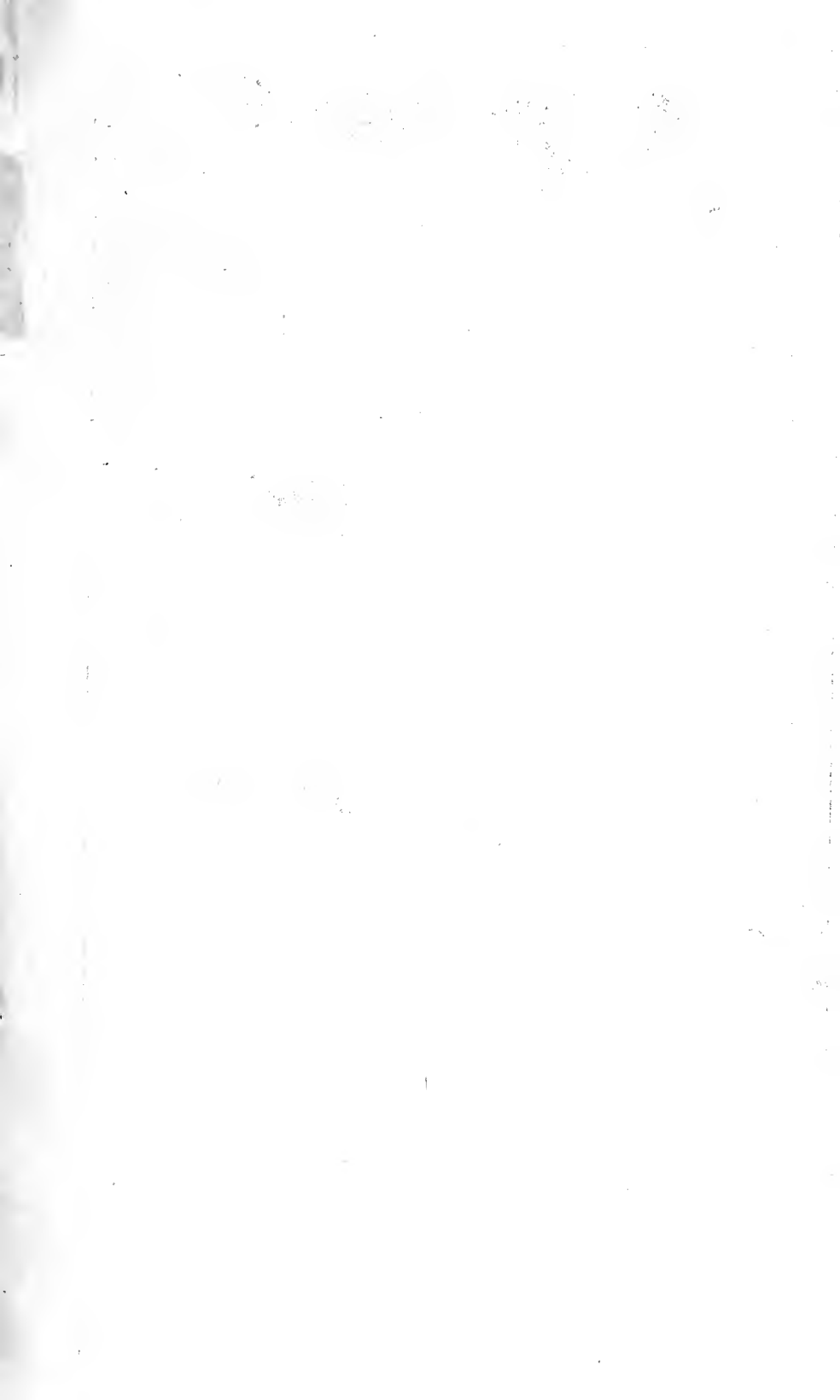
Painting, still-life, flowers, out-door sketching.

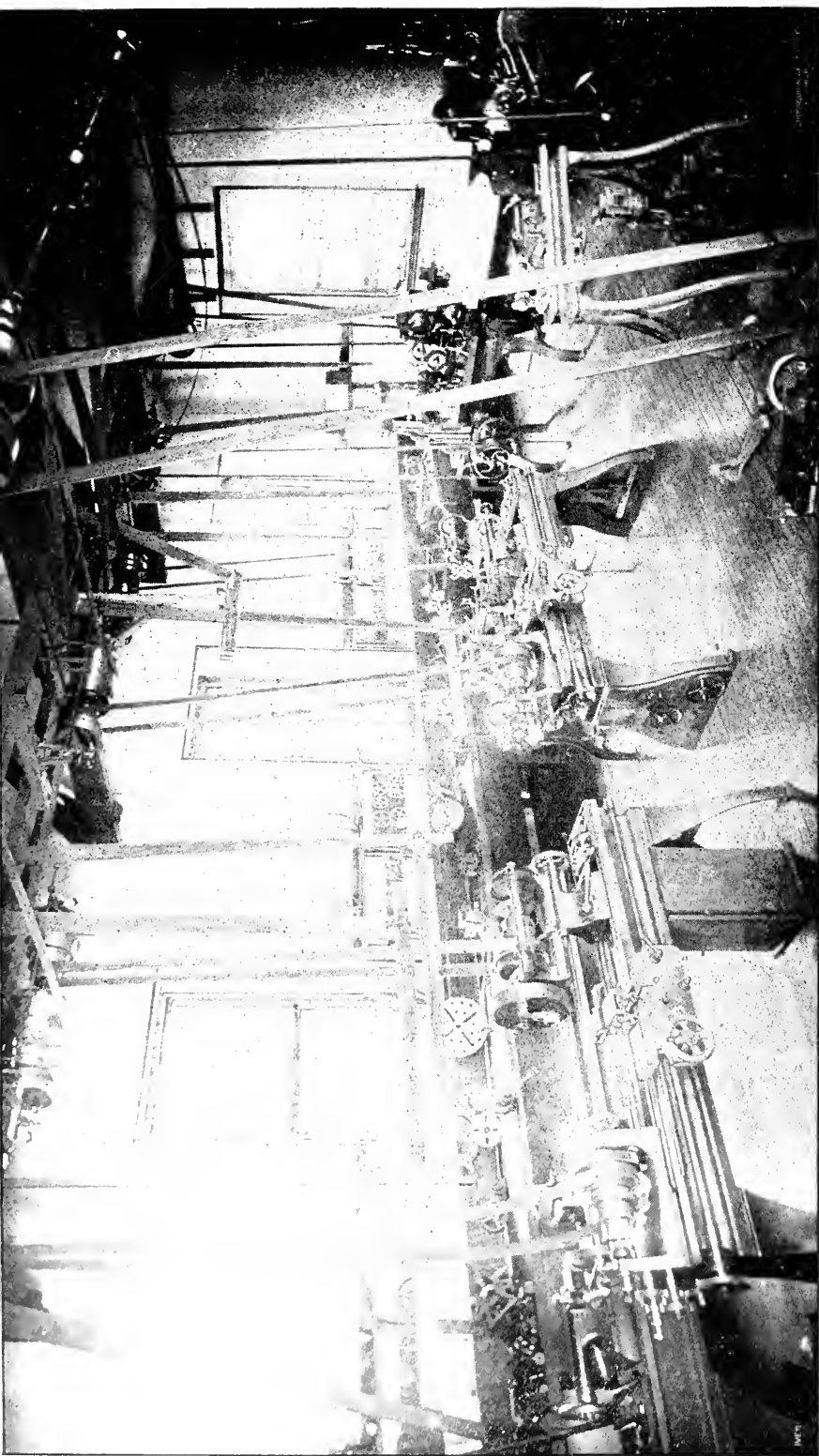
SENIOR CLASS.—(*Extra*), *four periods a week.*

Drawing from cast, head or figure.

Painting, still-life, flowers, out-door sketching.







MACHINE SHOP.

## History of Art.

JUNIOR CLASS.—(*Elective*), *two periods a week*.

First Semester :—History of Italian Art, the Renaissance.

Second Semester :—History of Art in Germany, England, and Spain.

SENIOR CLASS.—(*Elective*), *two periods a week*.

First Semester :—History of Art in France ; Modern Art.

Second Semester :—Grecian Art.

The students are required to present written sketches upon the subjects under consideration and to visit the different art exhibitions held in Philadelphia during each season.

## Engineering and Mechanic Arts.

ARTHUR BEARDSLEY, *Professor*; JOSEPH BAYLEY, JR., *Shop Practice*;  
FREDERIC A. SABBATON, JR., *Draughting and Field Practice*.

This department, in connection with that of Physics, is intended to give a good preparation to those students who are expecting to become either Civil or Mechanical Engineers, or to engage in any of the several specialties of engineering practice.

The studies and exercises are so arranged that the graduates will be prepared to become immediately useful in the office, works, or field, in subordinate positions, and, after a fair amount of such practice, to design and take charge of important works.

The location of the College is most favorable for residence and study, combining the quiet of the country with ready access to Philadelphia and the many important manufacturing cities in its vicinity, and permitting frequent visits to industrial and engineering works of every kind.

The department is well provided with the necessary field instruments, transits, levels, plane-table, etc., and each student is made familiar with their use and management by practical exercises in the field and draughting-room, carefully planned to illustrate the actual practice of the engineer. Included in the work of this department is a course in the Mechanic Arts, in which regular and systematic instruction is given in thoroughly-equipped workshops, and by skilled

instructors in the use of tools and machinery, and in methods and processes.

*The Draughting-Rooms* are lighted from the north, are furnished with adjustable tables, models, etc., are well ventilated and warmed, and are open for work during the greater part of the day.

*The Engineering Laboratory* contains an Olsen's testing-machine, arranged for tensile, compressive, and transverse tests, a steam-engine indicator, apparatus for hydraulic and steam-engine experiments, and other valuable instruments and appliances. It includes several shops, in which the students become familiar with the nature and properties of the materials of construction (iron, wood, brass, etc.), employed by the engineer, and with the processes of working them into the desired forms for their intended uses.

*The Machine Shop* contains an excellent and complete assortment of tools, including 4 screw-cutting engine lathes, 3 speed-lathes (simple and back-gear), an iron planer, a complete universal milling machine, a set of milling cutters adapted for general purposes and for making other cutters, a shaper, a twist-drill grinder, 2 upright drills, an emery grinder, a mill grinder, a grindstone, 16 vises (plain and swivel), 14 lathe chucks (combination, independent, scroll, and drill), a milling machine chuck, a rotary planer chuck, planer centres, a set of Bett's standard gauges, surface plates (Brown & Sharpe), sets of twist drills, reamers, mandrels, screw-plates, taps and dies, lathe centre grinder, a complete set of steam-fitters' tools with pipe vise, ratchet drill, etc., together with the many necessary small tools, hammers, chisels, files, etc. Additions are constantly being made to this collection, as they are needed, either by manufacture in the shops or by purchase. Power is furnished by a steam engine and boiler, the former fitted with an improved indicator, and the latter with the necessary attachments for determining its efficiency, etc.

*The Wood-Working Shop* contains 20 benches with vises, and 20 sets of wood-working tools, a grindstone, and wood-turning lathes.

*The Smith Shop* contains 7 forges, 10 anvils, and sets of black-smith tools, bench, and vise.

*The Foundry* contains a brass-furnace, moulders' benches, a variety of patterns, and full sets of moulders' tools.

The details of the course vary somewhat from year to year ; but,

in general, are represented by the following arrangement of the studies :

## FRESHMAN CLASS.

*Machine-Shop Practice* : Vise work, chipping and filing to line, scraping, fitting, tapping, reaming, hand-turning in brass and iron.

*Drawing* : Special geometric problems, working drawings, orthographic projections, shadows, brush work and tinting, machine drawing from copy and from measurements, gears, eccentrics, cams, pulleys, belting, etc.

*Engineering* : Lectures on the use of tools, on the properties of materials, etc.

## SOPHOMORE CLASS.

*Engineering* : Analytical mechanics of solids and fluids ; descriptive geometry, including shades, shadows, and perspective ; and the careful construction of the more important problems ; land surveying, with field practice and map drawing.

*Machine-Shop Practice*.—Lathe work, turning, boring, screw-cutting, drilling, planing, milling, grinding, polishing, etc., construction of a project. Lectures on machine tools, on materials of construction, etc.

*Drawing*.—Working drawings, sketches, drawings and blue prints for special work and projects, elements of machines, shadows and intersections, perspectives and finished drawings.

## JUNIOR CLASS.

*Engineering* : Theory and practice of road surveying and engineering.

*Geodesy*.—Theory, adjustment and use of engineering field instruments ; farm surveying ; leveling ; topographical, triangular, and hydrographical surveying.

*Applied Mechanics*.—Friction and other resistances ; stress and strength of materials.

*Drawing and Mechanism*.—Topographical, structure, and machine drawing ; principles of mechanism ; visits to and sketches of special machinery and structures.

*Practical Exercises* in the field in the Fall and Spring months, and in general laboratory practice, including the testing of metals and building materials, the setting up, testing, and management of steam-

engines, boilers, and machinery, throughout the year ; with occasional visits to mechanical establishments, and to important engineering works in or near Philadelphia.

For the Electrical Work, see department of Physics.

#### SENIOR CLASS.

*Engineering* : Theory and practice of road surveying and engineering, continued ; building materials ; stability of structures ; foundations and superstructures ; bridge construction.

*Applied Mechanics*.—Practical hydraulics ; practical pneumatics ; general theory of machines ; theory of prime movers, steam-engines, turbines, etc. ; measurement of power.

*Mechanism*.—Principles of mechanism, of machine design, of the transmission of power ; construction and use of tools.

*Drawing*.—Stone-cutting problems ; topographical, structure, and machine drawing ; plans, profiles, and sections of road surveys ; working drawings.

*Practical Exercises*.—As in Junior year, continued ; tests of building materials ; graduating thesis.

The Degree conferred at the completion of the course is Bachelor of Science in Engineering.

## English Composition.

The aim of the course is to secure a mastery of the art of expressing thoughts clearly and vigorously in the mother tongue.

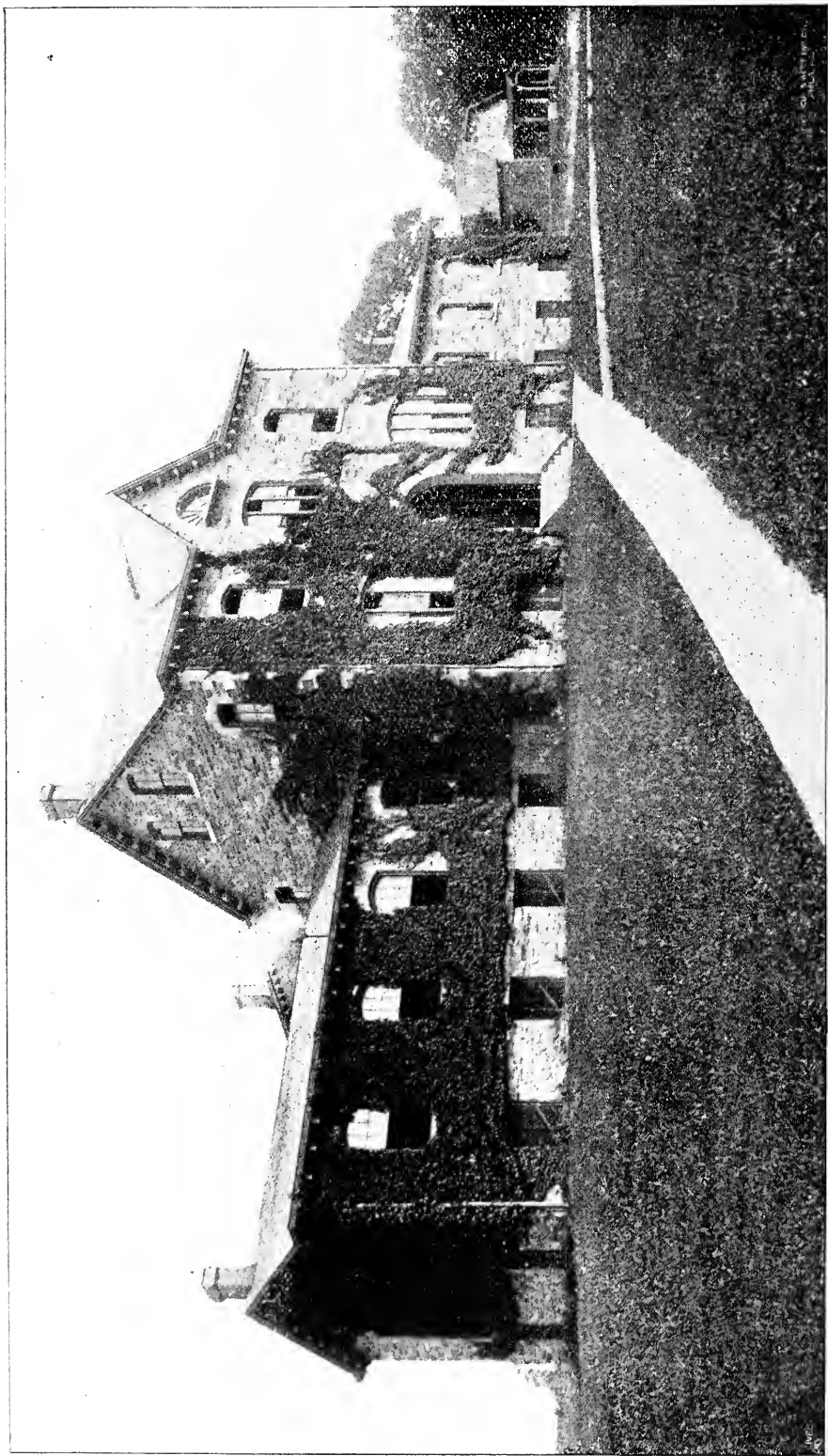
Required for all regular students.

#### FRESHMAN YEAR.

*Course in Engineering* : Punctuation, Capitalization, Diction, Sentence Structure ; Plan of Paragraphs and Whole Compositions ; Drill in different forms of Composition, especially Narrative and Descriptive forms ; drill in Abstracts, Outlines, Paraphrases, Letter-writing, Business Forms, etc. Text-book, Kellogg's Rhetoric. Four times a week.

*Course in Arts* : Drill in Punctuation, Capitalization, Diction, and Sentence forms. Once a week. History of English Language. Text-book, A. S. Hill's Rhetoric.





SCIENCE HALL.

MEETING HOUSE.



*Course in Science* : Drill in Punctuation, Capitalization, Diction, and Sentence Forms. Paraphrases of Narrative poems. History of English Language. Once a week. Text-book, Kellogg's Rhetoric.

*Course in Letters* : Punctuation, etc., as in other courses. Reading and discussion of Narrative poems. History of English Language, with exercises in derivations. Four times a week. A. S. Hill's Rhetoric.

SOPHOMORE YEAR.

*Course in Science* : Six weeks' review, using Nichols' Manual of English Composition as a guide. Genung's Rhetoric and Hand-book of Rhetorical Analysis. Original exercises in Analysis. Special drill in Paragraph Structure and outline work for Essays. Once a week.

*Course in Arts* : Same as course in Science. Once a week.

*Course in Letters* : Text-books as in courses in Arts and Science, with the addition of more extended reading. Three times a week.

JUNIOR YEAR.

*Courses in Science, Letters, and Arts* : Hunt's History of English Prose ; Unito's Manual of English Prose. Essays involving original research. Once a week.

SENIOR YEAR.

*Courses in Arts, Science and Letters* : Thesis work. Lectures on English Composition. Once a week.

## English Language and Literature.

WILLIAM H. APPLETON, *Professor*.

The course in English Literature extends through four years, instruction being given by recitations and lectures. During this time the English Language is studied in connection with the Literature from the Anglo-Saxon period down to the present day. The particular feature of the course is the critical reading in the class-room of representative authors, such as Chaucer, Shakespeare, Milton, Pope, Tennyson. Peculiarities of style and language are considered, allusions are looked up, and every effort made for a thorough comprehension of the work in hand. The author's life is studied in its relation to the history of the time, and his works are compared with those of his contemporaries. By this course it is expected that the student will

be enabled, from his own observation, to form an intelligent estimate of the style and merits of the great authors of English Literature.

The courses offered are as follows :

#### FRESHMAN CLASS.

The nineteenth century. Poetry and Prose. (For 1892-93, combined with Composition.)

#### SOPHOMORE CLASS.

The period from about 1750, continuing into the nineteenth century. (For 1892-93, combined with Composition.)

#### SENIOR AND JUNIOR CLASSES.

The period from Shakespeare to Dr. Johnson.

#### SENIOR AND JUNIOR CLASSES.

From the Anglo-Saxon period to Shakespeare. Readings in Anglo-Saxon, Chaucer, Spenser, etc. (*Junior work in 94-5-*)

The last two Courses are given in alternate years.

## French.

EDWARD H. MAGILL, *Professor.*

The objective points in the study of the French language will be wide and extensive reading, making the student as familiar as the time will allow with as many as possible of the best works in French Literature. To this end a minimum of grammar will be required, and rapid reading at sight encouraged early in the course. While the classical authors of the seventeenth century will receive careful attention, as much of the literature of the present generation as is found practicable will be introduced into the course. It is not possible nor necessary to name the various works used, as they will be changed from year to year, as circumstances and the condition of classes seem to require. Course III will be given to the Seniors and Juniors together, and will be so arranged as to amount to two years' work for those who have completed Courses I and II, and the same authors will not be read in this course in two consecutive years.

COURSE I. Time, one year. French Grammar—inflections of regular verbs and auxiliaries; forms of articles, nouns, adjectives, and

pronouns ; common irregular verbs ; general principles of syntax. Super's Preparatory French Reader ; varied selections (entire) ; Dictées.

Required of Sub-Collegiate students who do not elect German, and subject of examination for entrance to Freshman Class by those who offer a year's work in French ; also first year's work for those who must begin French after entering the Freshman Class. The corresponding Course I in German may be substituted for this course by students of *Arts* and *Engineering*, or may precede it for other students.

COURSE II. Time, one year. French Grammar reviewed and completed, Fénelon's *Télémaque*, varied selections (entire) from modern French writers, Dictées, Petit de Julleville's *Leçons de Littérature Française*.

Required of students of French who have completed Course I or have passed an entrance examination upon it.

COURSE III. Time, one year. Corneille's *Cid* and *Polyeucte* ; Racine's *Athalie* and *Esther* ; Molière's *Misanthrope* and *Les Précieuses Ridicules* ; Victor Hugo's *Hernani* and other selections (entire) from modern French writers ; Dictées, Petit de Julleville's *Leçons de Littérature Française*.

Required of students of French who have completed Courses I and II.

N. B.—Science and Engineering students will omit the Second Semester's work in this course, and substitute for it a special course in Scientific French.

NOTE.—Students in Letters and Science who complete French during their Freshman and Sophomore years will take German during their Junior and Senior years, and *vice versa*.

## German Language and Literature.

MARIE A. KEMP, *Professor*.

The course in German language and literature extends through four years. Its object is to give the student a reading and—in so far as possible—speaking knowledge of modern colloquial German ; also a general acquaintance with German literature, to be gained from lectures and collateral reading in English.

COURSE I. Time, one year. Joynes-Meissner's German Grammar, Grimm's *Märchen*, Stifler's *Haidedorf*. Memorizing of German ballads; class translation, from hearing, of easy German prose.

Required of Sub-Collegiate students who do not elect French, and subject of examination for entrance to Freshman Class by those who offer a year's work in German; also first year's work for those who must begin German after entering the Freshman Class. The corresponding Course I in French may be substituted for this course by students of *Arts* and *Engineering*, or may precede it for other students.

COURSE II. Time, one year. Joynes-Meissner's German Grammar, Erchenchorff's *Taugenichts*, Heine's *Harsreise*. Memorizing of German poems; prose composition; class translation, from hearing, of German prose; lectures on outlines of German literature.

COURSE III A, alternating with COURSE III B. Time, one year. Freytag's *Journalisten*, selections from *Dichtung und Wahrheit*, *The Story of Soldier Fritz* (to be translated from English into German). Prose composition, particularly letter-writing; lectures on First Classic Period—Volksepos, Minnegesung. Collateral reading: Scherer's *History of German Literature*, selections from Vilmar's *History of German Literature*, Taylor's *Studies in German Literature*.

COURSE III B, alternating with COURSE III A. Time, one year. *Minna v. Barnhelm*, *Soll und Hahn* (condensed edition). Buchheim's *Deutsche Lyrik*. Prose composition, particularly letter-writing. Lectures on Second Classic Period. Collateral reading: Sime's *Life of Goethe*, Boyesen's *Essays on German Literature*, Boyesen's *Goethe and Schiller*.

COURSES III A and III B are offered to students who have completed Course II, and one of them is required of students in Letters who have not presented one year's German upon entrance.

N. B.—Science and Engineering students will omit the Second Semester's work in this course and substitute for it a special course in scientific German.

NOTE.—Students in Letters and Science who complete German during their Freshman and Sophomore years will take French during their Junior and Senior years, and *vice versa*.

## Greek.

WILLIAM H. APPLETON, *Professor*.

I. Students who present the usual College requisition in Greek (see page 26) will be required to continue the study for two years, with the privilege of electing it thereafter, in accordance with the following scheme :

## FRESHMAN YEAR (REQUIRED).

Poetry—Homer : The Iliad or Odyssey (Selections).

Prose—The Greek Historians : Herodotus and Thucydides (Selections).

## SOPHOMORE YEAR (REQUIRED).

Poetry—Greek Tragedy : Æschylus, Sophocles. One play of each.

Prose—Plato's Apology and Crito, Xenophon's Memorabilia. (A study of Socrates.)

## JUNIOR YEAR (ELECTIVE).

Poetry—Euripides : Several plays.

Prose—Demosthenes : The Oration on the Crown.

## SENIOR YEAR (ELECTIVE).

Poetry—Aristophanes, Lyric poets.

Prose—Plato's Dialogues. Modern Greek. Readings in Vincent and Dickson's Hand-book, with colloquial exercises. Lectures on the History of Greek Literature.

*Note.*—All the classes have exercises in Greek Composition with much practice in sight-reading.

II. Students who present no Greek at the admission examinations will be required, in order to graduate with the degree of A. B., to take the language for the entire four years as follows :

## FRESHMAN YEAR.

Goodwin's Grammar, Xenophon's Anabasis, Greek Testament.

## SOPHOMORE YEAR.

Xenophon's Memorabilia, Plato's Apology and Crito.

## JUNIOR YEAR.

Homer: The Iliad or Odyssey (six books).  
Greek Historians (Selections).

## SENIOR YEAR.

Greek Drama: Two plays. Greek Prose, Modern Greek, Lectures on Greek Literature.

*Note.*—Greek Composition and sight-reading in all the classes.

## History and Political Science.

WILLIAM P. HOLCOMB, *Professor.*

This department, in connection with that of Political Economy and Social Science, is designed to furnish information that is necessary for intelligent citizenship, and to provide a valuable preliminary training for those who intend to engage in the law, in journalism, in business, or in the public service. Instruction is given by means of lectures, recitations, and oral and written reports by the students on assigned topics. In the most advanced courses each student is required to make an independent and detailed study of some assigned or chosen subject. For this purpose the library contains a good working collection of public documents and reports, both Federal and State, in addition to the standard treatises.

All the courses are for a half-year each, and are given four hours a week.

The following is a detailed statement of the courses:

### HISTORY.

## FRESHMAN YEAR.

Second Semester: History of Greece and Rome. A review of their civilizations, and a special study of their political institutions. Required of students in Arts and Letters, and elective for students in Science.

## SOPHOMORE YEAR.

First Semester: Brief course of lectures on Mediæval Civilization of Europe, followed by the History of Modern France. Elective for students in Letters and Science.

Second Semester : History of Prussia and the Development of the present German Empire. Elective for students in Arts, required of students in Letters.

## JUNIOR YEAR.

First Semester : Political and Constitutional History of England during the last three centuries, with required reading and examination on the preceding portion. Elective for students in Arts, Letters, and Science.

Second Semester : Political and Constitutional History of the United States, including a survey of the Social and Institutional History of the Colonies. Required of students in Arts and Letters, and elective for students in Science.

## POLITICAL SCIENCE.

## FRESHMAN YEAR.

First Semester : Civil Government in the United States, Federal, State, Municipal. Required of students in Arts and Letters, and elective for students in Science.

## SENIOR YEAR.

First Semester : Comparative Constitutional Law, based on the works of Cooley and Burgess. The leading provisions of our public law are compared with those of England, France, and Germany. Elective for students in Arts, Letters, and Science.

Second Semester : The Elements of International Law. Lectures on the Diplomatic History of the United States. Elective for students in Arts, Letters, and Science.

## Latin.

FERRIS W. PRICE, *Professor*.

## FRESHMAN CLASS.

Cicero, Orations ; Sallust, Catiline ; Latin Composition.

## SOPHOMORE CLASS.

Horace, Odes and Selections from Epodes, Satires and Epistles ; Mythology ; Cicero's Letters (chiefly at sight).

## JUNIOR CLASS.

Remnants of Early Latin ; Plautus Trinummus ; Terence, Phormio ; Cicero, De Senectute ; Latin Hymns.

## SENIOR CLASS.

Selections from Lucretius, Catullus, and Livy ; Juvenal, three Satires ; Tacitus, Agricola ; Virgil's Georgics and Æneid (Books VII-XII).

Sight-reading throughout the course.

The above is a statement of the work to be done during 1892-93. For 1893-94 material changes are proposed, these being preparatory to a complete rearrangement of the Latin work in 1894-95, in accordance with the increased requirement for admission to go into effect in that year. (See page 26.)

## Logic.

WILLIAM I. HULL, *Instructor*.

## SENIOR CLASS.

Two exercises a week during First Semester. (Jevons.)

## Mathematics.

SUSAN J. CUNNINGHAM, *Professor* ; JOHN H. HUMPHRIES, *Assistant*

## FRESHMAN CLASS.

Wentworth's College Algebra, finished ; Chauvenet's Geometry (Byerly's edition), Review and Book VI ; Wentworth's and Chauvenet's Plane Trigonometry.

## SOPHOMORE CLASS.

Chauvenet's Geometry (Byerly's edition), finished ; Byerly's Differential Calculus ; Todhunter's Conic Sections ; Young's General Astronomy.

## JUNIOR CLASS.

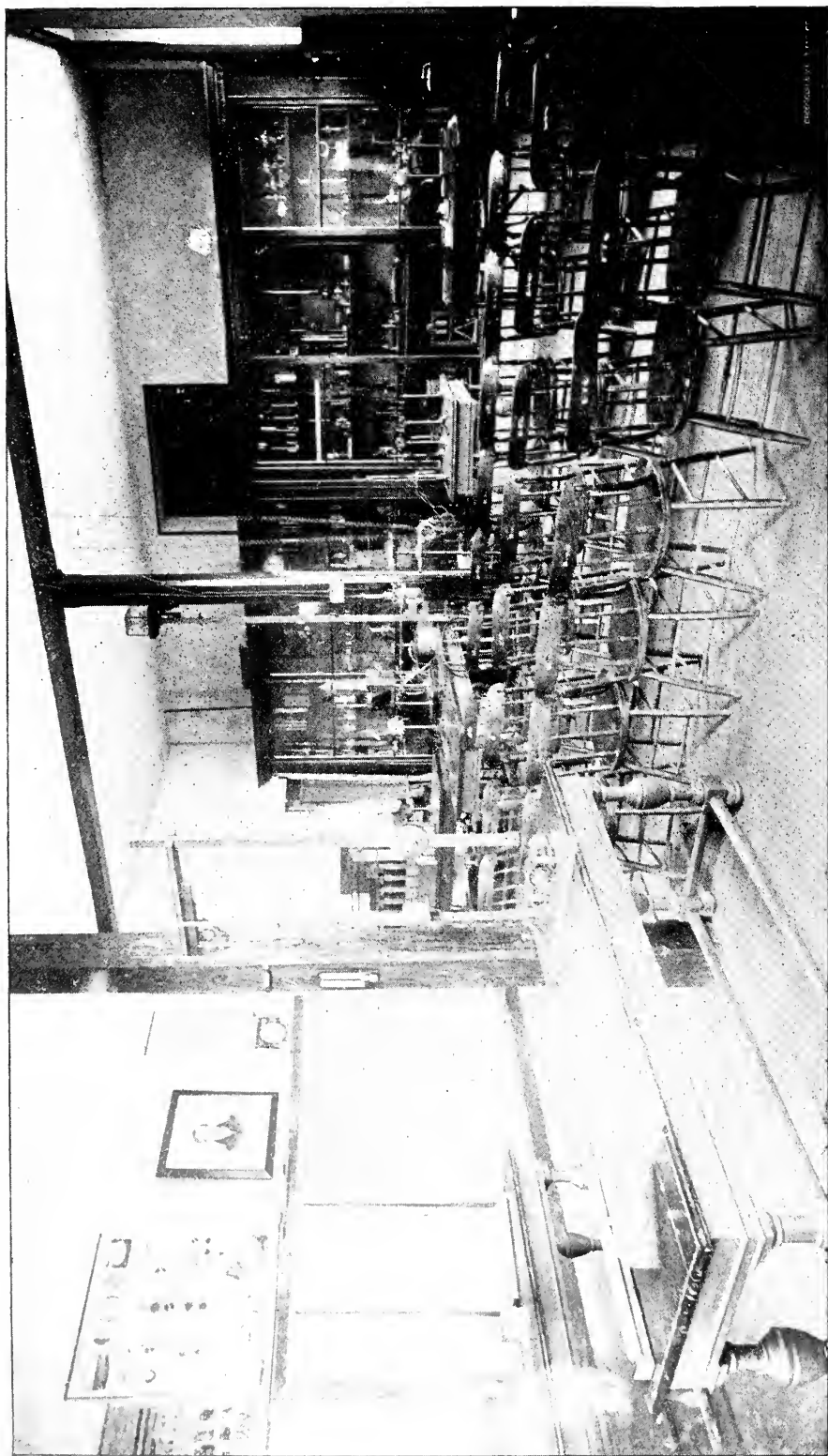
Byerly's Integral Calculus ; Chauvenet's Spherical Trigonometry ; Solid Analytical Geometry (elective).

## SENIOR CLASS.

Chauvenet's Spherical and Practical Astronomy.







PHYSICAL LABORATORY.

## Pedagogics.

PRESIDENT DE GARMO.

This department is in the hands of the President. Instruction in this branch of education consists, first, of a fundamental study of the principles of instruction by text-book, lectures, and practical exercises prepared by the student. A second department of work embraces a thorough-going study of each of the elementary branches in its pedagogical aspects, such as its rapidity of development in the course of study, its history as a branch of education, both as regards its introduction and growth in importance, and the various stages of method through which it has passed. A third phase of the work is the study of the government and management of schools, and a fourth the study of the history of education.

## Philosophy.

PRESIDENT DE GARMO.

SENIOR CLASS.

*Psychology*.—First Semester: Dewey's Psychology. Special attention paid to the processes of knowledge, together with their application to modern problems of education. The spiritual nature of the mind clearly exhibited. Extended study of the nature of knowledge, feeling, and volition; also of the psychological basis of moral character.

*History of Philosophy*.—Second Semester: The history of Ancient and Modern Philosophy is taught in alternate years. First course, Schwegler's History of Philosophy, from Thales to Leibnitz inclusive, with especial reference to Socrates, Plato, and Aristotle; second course, from Descartes to the present, with a study of the text of Locke's Essay Concerning Human Understanding. The ethical bearings of each prominent system are dwelt upon.

## Physical Culture.

DR. J. K. SHELL; LAURA M. SMITH.

The system of Physical Culture is based on a thorough examination of each student, carefully noting all defects of development, and

functional weakness, and the ratio existing between the tested strength and the muscularity ; and on these data formulating a course of exercises such as will meet the requirement of each individual, so as to produce an evenly developed and healthy organism.

The young men are required to give three hours each week for carrying out the prescription of the Director.

The sports of foot-ball, base-ball, and athletics are under the direct supervision of the Director, and only those who are physically fit are allowed actively to compete ; great care is taken that the games be kept within proper limits, so as not to take too much of the students' attention or energy.

The physical culture of the young women is under the most careful supervision of a student of the Sargent system. Examinations are made and prescriptions given according to the special needs of each student.

## Physics.

GEORGE A. HOADLEY, *Professor.*

*The Physical Laboratory* is already provided with apparatus for determinations in the mechanics of solids and fluids, in heat, sound, light, electricity, and magnetism ; as also with a large amount for lecture experiments. Most of this has been selected with care from the best American and foreign makers, but some is of home manufacture ; and the co-operation of the Engineering Department and the increasing skill of our students enable us now to make each year a larger proportion for regular use in the Laboratory. It is our aim to afford students continued opportunities for instruction in the principles of construction of ordinary and special apparatus. Power for running dynamos and for other purposes is near at hand. The instruction begins in the Sophomore year, and extends through the course as follows :

FOR STUDENTS IN ARTS AND LETTERS :

SOPHOMORE CLASS.

*General Physics.*—This course consists of the investigation of the general laws of Physics and the consideration of their practical application.

The work of the course is done by lectures and recitations,

accompanied by experimental verification of the laws discussed, and extends over the entire year.

#### JUNIOR CLASS.

During the Junior year, the course is an elective in Heat, Magnetism, Electricity, and Light.

#### FOR STUDENTS IN SCIENCE AND ENGINEERING.

This course occupies two consecutive years, requiring two periods per week in the Sophomore year, and four in the Junior. It is intended to be pre-eminently a practical course, consisting largely of laboratory work, in the investigation and verification of the laws of Physics.

The recitation work will cover the topics treated in Ganot's Physics, or some other text-book of equal rank, and will be supplemented by lectures on the various branches of the subject.

The division of the work is as follows :

#### SOPHOMORE CLASS.

Applied Mechanics and Dynamics, and Sound.

#### JUNIOR CLASS.

Heat, Magnetism, Electricity, and Light.

#### SENIOR CLASS.

Applied Electricity.

This is an elective of eight periods per week, counting as four. In this the Junior work in Magnetism and Electricity is supplemented by the practical study of their application to the telephone, telegraph, dynamo, electric light, motor transmission of power, etc.

Work in the manufacture and use of these various appliances, as well as in the measurement of the electrical current, is accompanied by text-book work in Ayrton's Practical Electricity and by the reading and class discussion of current electrical journals. Visits to the electrical plants of the neighboring villages and cities are made at convenient times, for the purpose of studying the machinery in actual use.

## Political Economy and Social Science.

WILLIAM I. HULL, *Associate Professor.*

The study of Political Economy extends through the Junior and Senior years, and consists of lectures, recitations, and reports by the students. Parallel readings of standard authorities are required, and an essay on some economic subject is written yearly by each student.

The courses offered are as follows :

### JUNIOR YEAR.

First Semester : General Principles of Political Economy. Four hours a week.

Second Semester : Protection and Free Trade ; Money and Banking. Four hours a week.

### SENIOR YEAR.

First Semester : Finance and Taxation ; Socialism. Four hours a week.

Second Semester : History of Economic Theories ; Social Problems. Four hours a week.

The course in Protection and Free Trade will include a study of the general principles underlying each, and a history of Protection in the United States. The course in Social Problems will treat of such topics as Charity ; Penology ; Women Wage-Earners ; The Labor of Children in Factories ; The University Settlement Idea and its Extension, including Toynbee Hall and allied movements.

## Reading and Speaking.

MYRTIE E. FURMAN, *Assistant Professor.*

This course extends over four years. It consists of training in respiration, articulation, enunciation, and the Delsarte system of gesture as far as practicable. Thought-conception is made the first step toward natural and effective expression. A careful study of the authors chosen is required, so that the course becomes to some extent one in English literature. The student studies critically and becomes familiar with many selections of acknowledged excellence.

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# General Remarks on the Courses of Study.

In arranging the courses of study, while recognizing the fact that the domain of human knowledge is so vast that he who would succeed best must confine his attention chiefly to some chosen field, we have endeavored not to lose sight of the equally important fact that those are best equipped for work in any particular department who have the most extended view of the realm of learning as a whole.

To secure in a measure both these results, minor courses in many of the subjects of the curriculum are required of all ; while the more extended courses in each subject are taken only by those whose taste and inclination lie in that particular direction.

In pursuing this policy for several years, we have developed four distinct lines of study. In each of them are required those subjects which are essential to the logical and natural development of the course. The courses are as follows :

## THE COURSE IN ARTS.

The characteristic feature of this course is the study of Classical Antiquity, including the language and literature of the Greeks and Romans, with their art, philosophy, religion, and political and social history. Combined with this are courses in Modern Languages, Mathematics, and Science, with some elective subjects. While this course affords that broad culture which should be the foundation of any subsequent career, it may be made to afford special preparation for Law or Journalism by including electives in History and Political Economy, or it may be shaped in the direction of Medicine by choosing electives in Biology and Chemistry. This course leads to the degree of *Bachelor of Arts*.

## THE COURSE IN LETTERS.

This course is arranged to provide a liberal education for those who do not wish to pursue the study of the ancient languages, nor to take all the science required in the Science Course. Its leading feat-

ures are a liberal amount of English, French, and German, and of History and Political Science. It includes the amount of Mathematics usually prescribed in a college course, with a fair amount of Science, and some elective subjects, including Latin. This course leads to the degree of *Bachelor of Letters*.

#### THE COURSE IN SCIENCE.

The characteristic feature of this course is more extended instruction in Science than in the preceding courses, together with a fair amount of Mathematics and Modern Language study, including English. The instruction in Physics, Chemistry, and Biology is of a two-fold character ; first, systematic treatment in experimental lectures ; secondly, practical work in the laboratories. Thus the student acquires a familiarity, not only with the more important facts and fundamental principles of those sciences, but also with the correct methods of work, so that his course may form a foundation for subsequent higher work in any department of science. This course leads to the degree of *Bachelor of Science*.

#### THE COURSE IN ENGINEERING.

This course offers, in its various studies and exercises, a training which is believed to be well adapted to the needs of Civil and of Mechanical Engineers, as well as of the large class who are to be concerned with the material interests of the country, with manufacturing, with industrial pursuits, or with any of the many other occupations allied to Engineering. It embraces liberal and technical instruction in the mathematical, physical, and graphical sciences, and their applications in practical field engineering, in the arts of design and construction, and in the use of tools, materials, and machinery, and in processes. This course leads to the degree of *Bachelor of Science in Engineering*.



# Studies of the Course in Arts.

## Freshman Year.

### FIRST SEMESTER.

*Prescribed.*—Greek, 4; Latin, 4; Mathematics, 4; Civil Government 4; Elocution, 2; Composition, 1.

*Extras.*—Drawing and Painting, 4=2; French or German, 4.

### SECOND SEMESTER.

*Prescribed.*—Greek, 4; Latin, 4; Mathematics, 4; Elocution, 2; History, 4; Composition, 1.

*Extras.*—Drawing or Painting, 4=2; French or German, 4.

## Sophomore Year.

### FIRST SEMESTER.

*Prescribed.*—Greek, 4; Latin, 4; Mathematics, 4; Physics, 4; Biology, 3; Composition, 1.

*Extras.*—Drawing and Painting, 4=2; Elocution, 2; French or German, 4.

### SECOND SEMESTER.

*Prescribed.*—Greek, 4; Latin, 4; Physics, 4; Biology, 3; Composition, 1; Electives, 4.

*Electives.*—History, 4; Descriptive Astronomy, 2; Elocution, 2.

*Extras.*—Drawing and Painting, 4=2; French or German, 4.

## Junior Year.

### FIRST SEMESTER.

*Prescribed.*—Greek, 4; Latin, 4; Chemistry, 4; Composition, 1; Political Economy, 4; Electives, 4.

*Electives.*—French or German, 4; History, 4; English, 4; Biology, 6=4; Pedagogics, 2; History of Art, 2; Elocution, 2.

*Extras.*—Drawing and Painting, 2.

### SECOND SEMESTER.

*Prescribed.*—Greek, 4; Latin, 4; History, 4; Composition, 1; Electives, 8.

*Electives.*—French or German, 4; English, 4; Chemistry, 4; Biology, 6=4; Political Economy, 4; Pedagogics, 2; Elocution, 2; History of Art, 2.

*Extras.*—Drawing and Painting, 2.

## Senior Year.

### FIRST SEMESTER.

*Prescribed.*—Greek, 4; Mental and Moral Philosophy, 4; Logic, 2; Elocution, 2; Composition, 1; Electives, 8.

*Electives.*—Latin, 4; Chemistry, 8=4; English, 4; Political Science, 4; Biology, 3; Pedagogics, 2; Mineralogy, 2; History of Art, 2.

*Extras.*—Drawing and Painting, 2.

### SECOND SEMESTER.

*Prescribed.*—Greek, 4; Mental and Moral Philosophy, 4; Geology, 3; Elocution, 2; Electives, 8.

*Electives.*—Latin, 4; Chemistry, 8=4; English, 4; Political Science, 4; Pedagogics, 2; Mineralogy, 2; History of Art, 2.

*Extras.*—Drawing and Painting, 2.

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Physical Culture is required of all.

# Studies of the Course in Letters.

## Freshman Year.

### FIRST SEMESTER.

*Prescribed.*—French or German, 4; Mathematics, 4; English and Composition 4; Civil Government, 4; Elocution, 2.  
*Extras.*—Drawing and Painting, 4=2; Biology, 3.

### SECOND SEMESTER.

*Prescribed.*—French or German, 4; Mathematics, 4; English and Composition, 4; Elocution, 2; History, 4.  
*Extras.*—Drawing and Painting, 4=2; Biology, 3.

## Sophomore Year.

### FIRST SEMESTER.

*Prescribed.*—French or German, 4; Mathematics, 4; English and Composition, 3; Physics, 4; Biology, 3; Electives, 4.  
*Electives.*—Latin, 4; History, 4.  
*Extras.*—Drawing and Painting, 4=2.

### SECOND SEMESTER.

*Prescribed.*—French or German, 4; History, 4; English and Composition 3; Physics, 4; Biology, 3; Electives, 4.  
*Electives.*—Latin, 4; Descriptive Astronomy, 2; Elocution, 2.  
*Extras.*—Drawing and Painting, 4=2.

## Junior Year.

### FIRST SEMESTER.

*Prescribed.*—English, 4; Political Economy, 4; French or German, 4; Chemistry, 4; Composition, 1; Electives, 4.  
*Electives.*—Latin, 4; Biology, 6=4; History, 4; German or French, 4; Elocution, 2; Pedagogics, 2; History of Art, 2.  
*Extras.*—Drawing and Painting, 2.

### SECOND SEMESTER.

*Prescribed.*—English, 4; History, 4; French or German, 4; Political Economy, 4; Composition, 1; Electives, 4.  
*Electives.*—Latin, 4; Chemistry, 6=4; Biology, 6=4; Pedagogics, 2; Elocution, 2; History of Art, 2.  
*Extras.*—Drawing and Painting, 2.

## Senior Year.

### FIRST SEMESTER.

*Prescribed.*—English, 4; Mental and Moral Philosophy, 4; French or German, 4; Logic, 2; Elocution, 2; Composition, 1; Electives, 4.  
*Electives.*—Political Science, 4; Biology, 3; History of Art, 2; Mineralogy, 2; Pedagogics, 2.  
*Extras.*—Drawing and Painting, 2.

### SECOND SEMESTER.

*Prescribed.*—English, 4; Mental and Moral Philosophy, 4; French or German, 4; Geology, 3; Elocution, 2; Electives, 4.  
*Electives.*—Latin, 4; Political Science, 4; Mineralogy, 2; Pedagogics, 2; History of Art, 2.  
*Extras.*—Drawing and Painting, 2.

Physical Culture is required of all.

# Studies of the Course in Science.

## Freshman Year.

### FIRST SEMESTER.

*Prescribed.*—Chemistry, 4; Mathematics, 4; French or German, 4; Biology, 3; Composition, 1; Electives, 4.

*Electives.*—Draughting, 6=4; Civil Government, 4.

*Extras.*—Drawing and Painting, 4=2; Elocution, 2.

### SECOND SEMESTER.

*Prescribed.*—Chemistry, 6=4; Mathematics, 4; French or German, 4; Biology, 3; Composition, 1; Electives, 4.

*Electives.*—Draughting, 6=4; History, 4.

*Extras.*—Drawing and Painting, 4=2; Elocution, 2.

## Sophomore Year.

### FIRST SEMESTER.

*Prescribed.*—Chemistry, 8=4; Mathematics, 4; French or German, 4; Physics, 2; Biology, 3; Composition, 1; Electives, 2.

*Electives.*—Elocution, 2; History, 4; Draughting, 4=2.

*Extras.*—Drawing and Painting, 4=2.

### SECOND SEMESTER.

*Prescribed.*—Chemistry, 8=4; Mathematics, 4; Physics, 2; Biology, 3; French or German, 4; Composition, 1; Electives, 2.

*Electives.*—Draughting, 4=2; Descriptive Astronomy, 2; Elocution, 2.

*Extras.*—Drawing and Painting, 4=2.

## Junior Year.

### FIRST SEMESTER.

*Prescribed.*—Physics, 4; Chemistry, 8=4; Biology, 6=4; French or German, 4; Composition, 1; Electives, 4.

*Electives.*—Mathematics, 4; Pedagogics, 2; Elocution, 2; English, 4; History, 4; Political Economy, 4.

*Extras.*—Drawing and Painting, 2.

### SECOND SEMESTER.

*Prescribed.*—Physics, 4; Chemistry, 8=4; Biology, 6=4; French or German, 4; Composition, 1; Electives, 4.

*Electives.*—Mathematics, 4; English, 4; History, 4; Political Economy, 4; Pedagogics, 2; Elocution, 2.

*Extras.*—Drawing and Painting, 2.

## Senior Year.

### FIRST SEMESTER.

*Prescribed.*—Chemistry, 8=4; French or German, 4; Mental and Moral Philosophy, 4; Biology, 3; Composition, 1; Electives, 4.

*Electives.*—Physics, 8=4; Political Science, 4; Mineralogy, 2; Logic, 2; Elocution, 2; Pedagogics, 2.

*Extras.*—Drawing and Painting, 2.

### SECOND SEMESTER.

*Prescribed.*—Mental and Moral Philosophy, 4; Chemistry, 8=4; French or German, 4; Geology, 3; Elocution, 2; Electives, 4.

*Electives.*—Political Science, 4; Physics, 8=4; Mineralogy, 2; Pedagogics, 2.

*Extras.*—Drawing and Painting, 2.

Physical Culture is required of all.

# Studies of the Course in Engineering.

## Freshman Year.

### FIRST SEMESTER.

*Prescribed.*—Draughting, 9=6; Mathematics, 4; Chemistry, 4; Composition, 4.

*Electives.*—French or German, 4; Biology, 3.

### SECOND SEMESTER.

*Prescribed.*—Engineering Practice, 9=6; Mathematics, 4; Chemistry, 6=4; Composition, 4.

*Electives.*—French or German, 4; Biology, 3.

## Sophomore Year.

### FIRST SEMESTER.

*Prescribed.*—Descriptive Geometry and Surveying, 4; Engineering Practice, 9=4; Mathematics, 4; Chemistry, 6=2; Physics, 2; Electives, 4.

*Electives.*—French or German, 4; History, 4.

*Extras.*—Drawing and Painting, 2; Elocution, 2.

### SECOND SEMESTER.

*Prescribed.*—Mechanics, 4; Draughting and Engineering Practice, 9=4; Mathematics, 4; Chemistry, 6=2; Physics, 2; Electives, 4.

*Electives.*—French or German, 4; History, 4.

*Extras.*—Drawing and Painting, 2.

## Junior Year.

### FIRST SEMESTER.

*Prescribed.*—Engineering, 4; Engineering Practice, 10=4; Mathematics, 4; Physics, 4; Electives, 4.

*Electives.*—Chemistry, 8=4; French or German, 4; Extra Engineering and Electricity, 4; Biology, 4.

*Extras.*—Drawing and Painting, 2; Pedagogics, 2; Elocution, 2.

### SECOND SEMESTER.

*Prescribed.*—Engineering, 4; Engineering Practice, 4; Mathematics, 4; Physics, 4; Electives, 4.

*Electives.*—Chemistry, 8=4; French or German, 4; Extra Engineering and Electricity, 4; Biology, 4.

*Extras.*—Drawing and Painting, 2; Pedagogics, 2; Elocution, 2.

## Senior Year.

### FIRST SEMESTER.

*Prescribed.*—Engineering, 8; Engineering Practice, 10=4; Elocution, 2; Logic, 2; Electives, 4.

*Electives.*—Astronomy, 4; English, 4; Chemistry, 8=4; Physics, 8=4; Mineralogy, 2; Pedagogics, 2.

*Extras.*—Drawing and Painting, 2.

### SECOND SEMESTER.

*Prescribed.*—Engineering, 8; Engineering Practice, 10=4; Elocution, 2; Geology, 3; Electives, 4.

*Electives.*—Astronomy, 4; English, 4; Chemistry, 8=4; Physics, 8=4; Mineralogy, 2; Pedagogics, 2.

*Extras.*—Drawing and Painting, 2.

Physical Culture is required of all.

# Studies of the Sub-Collegiate Class.

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## Course in Arts.

### FIRST SEMESTER.

Latin, 4 ; Algebra, 4 ; Geometry, 2 ; French (throughout the year), 4—or German (throughout the year), 4 ; Reading, 2 ; Physical Geography, 4.

### SECOND SEMESTER.

Latin, 4 ; Algebra, 4 ; Geometry, 2 ; Freehand Drawing, 4 ; French (throughout the year), 4—or German (throughout the year), 4 ; English, 4.

## Course in Science.

### FIRST SEMESTER.

Algebra, 4 ; Geometry, 2 ; French (throughout the year), 4—or German (throughout the year), 4 ; Physical Geography, 4 ; Freehand Drawing, 4 ; Reading, 4.

### SECOND SEMESTER.

Algebra, 4 ; Geometry, 2 ; French (throughout the year), 4 ;—or German (throughout the year), 4 ; Freehand Drawing, 4 ; Reading, 4 ; English, 4.

## Graduation and Degrees.

As a condition of graduation, each student must submit to the Faculty a satisfactory Oration or Essay, which he must be prepared to deliver in public, if required to do so.

### The Degree of Bachelor.

The Degrees of Bachelor of Arts, of Letters, and of Science are conferred on the completion of the corresponding courses.

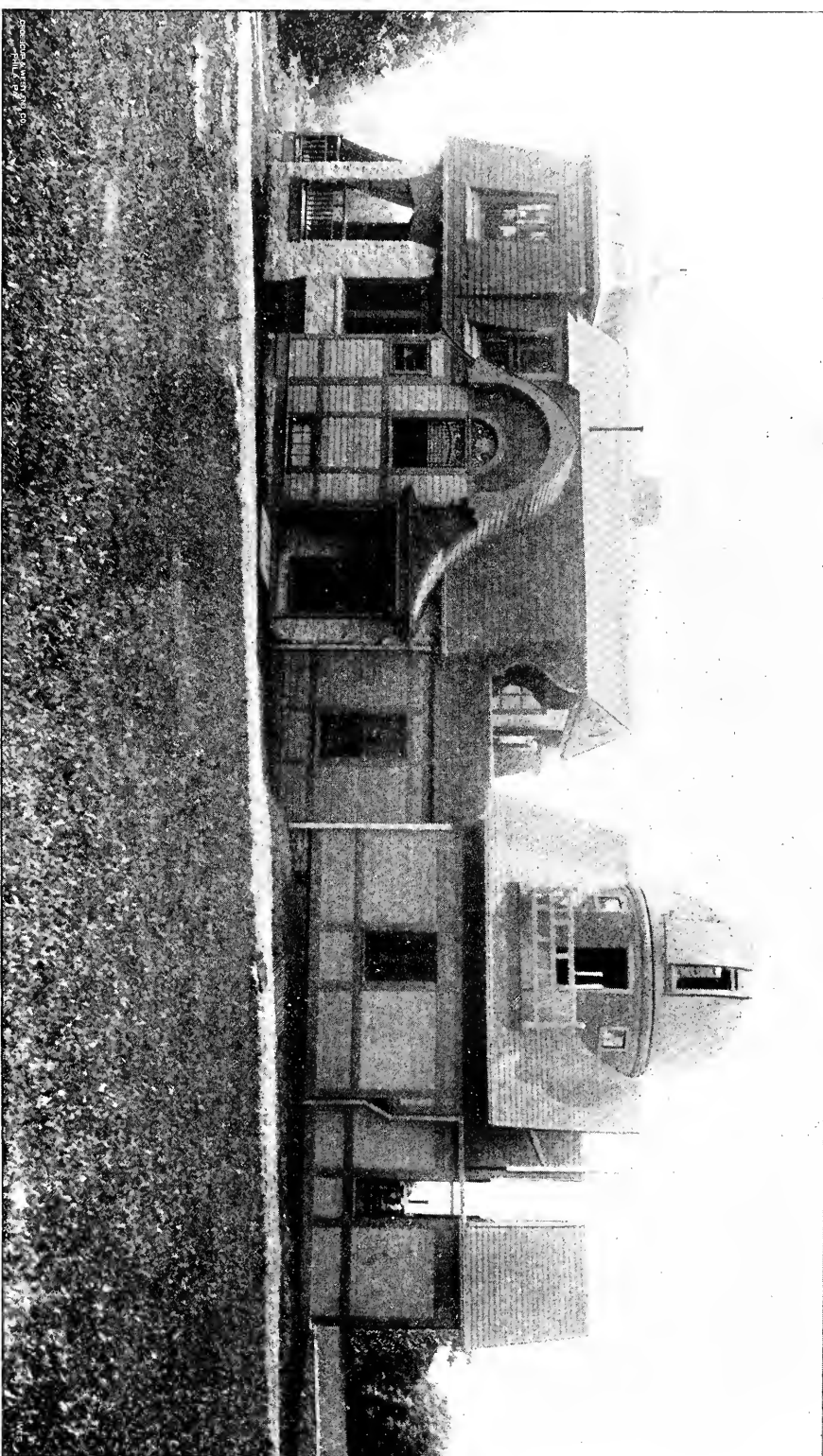
### The Degree of Master.

Candidates for the Master's Degree (A. M., M. L., and M. S.) are required to pursue a course of study at Swarthmore, or elsewhere, under the direction of the Faculty, and to pass examination in the same. Persons residing at the College and devoting their whole time to the work can accomplish a sufficient amount in one year; for non-resident candidates, who are at the same time engaged in other work, the course must occupy not less than two years. Application should be made directly to the Faculty, and should state the subject or subjects in which the applicants wish to present themselves. Work will then be assigned to them by the Faculty.

The Examinations for the Degrees will be both oral and written, and will be conducted by a committee of the Faculty, upon whose report the Faculty will decide upon the fitness of the candidate for the Degree. An extended thesis, bearing upon some part of the work assigned, will in all cases be required.

### The Degree of Civil Engineer.

The Degree of C. E. will be conferred upon Bachelors of Science of the Engineering Department who shall have been engaged for not less than three years, in successful professional practice, in positions of responsibility, and who shall present an acceptable thesis upon a subject pertaining to Engineering. Application for this Degree must be made, and the thesis presented at least *three months* before commencement.



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ASTRONOMICAL OBSERVATORY.





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INCORPORATED 1882.



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MORRIS L. CLOTHIER, '90, . . . . . Wynnewood, Pa.

# Graduates.

## Class of 1873.

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HELEN (MAGILL) WHITE, A.B. (Ph.D., Boston University, 1877), . . . . .	St. Petersburg, Russia.
ELIZABETH C. (MILLER) HOLCOMB, A.B., . . . . .	Swarthmore, Pa.
ESTHER T. MOORE, A.B., . . . . .	Swarthmore College, Pa.
*MARIA C. (PIERCE) GREEN, A.B., . . . . .	1877.
LOWNDES, TAYLOR, A.B., . . . . .	West Chester, Pa.

## Class of 1874.

ELLEN H. (EVANS) PRICE, A.M., 1884, . . . . .	Swarthmore, Pa.
AMY W. (HALL) HICKMAN, A.B., . . . . .	West Chester, Pa.
*ALFRED T. HAVILAND, B.S., . . . . .	1874.
MARY (HIBBARD) THATCHER, A.B., . . . . .	Wilmington, Del.
HERMAN HOOPES, C.E., 1879, . . . . .	Philadelphia, Pa.
FERRIS W. PRICE, A.M., 1887, . . . . .	Swarthmore, Pa.
ELIZABETH S. (WOOLSTON) COLLINS, A.B., . . . . .	Swarthmore, Pa.

## Class of 1875.

JOHN B. BOOTH, A.B., . . . . .	Pittsburgh, Pa.
HELEN (COMLY) WHITE, A.B., . . . . .	Lansdowne, Pa.
FRANKLIN H. CORLIES, B.S., . . . . .	Philadelphia, Pa.
*HERBERT G. DOW, A.B. (and Harvard, 1877), . . . . .	1878.
LIZZIE (HANES) TAYLOR, A.B., . . . . .	Woodstown, N. J.
EDITH R. (HOOPER) ROBERTS, A.B., . . . . .	Titusville, Pa.
BARTON HOOPES, JR., B.S., . . . . .	Philadelphia, Pa.
*OLIVER KEESE, JR., B.S., . . . . .	1879.
J. REECE LEWIS, B.S., . . . . .	Aiken, N. C.
HOWARD W. LIPPINCOTT, A.B., . . . . .	Philadelphia, Pa.
MARTHA (MCILVAIN) EASTWICK, A.B., . . . . .	Philadelphia, Pa.
JOHN K. RICHARDS, A.B., (and Harvard, 1877), . . . . .	Ironton, Ohio.
WILLIAM H. RIDGWAY, C.E., 1879, . . . . .	Coatesville, Pa.

## Class of 1876.

FRANK L. BASSETT, B.S. (D.D.S., Phila. Dental College, 1878), . . . . .	Philadelphia, Pa.
ARTHUR W. BRADLEY, A.B., . . . . .	Chicago, Ill.

\* Deceased.

- FRANCES (LINTON) SHARPLES, A.M., 1881 (M.D., Women's Medical College, Phila., 1886), . . . . . West Chester, Pa.  
 ELIZABETH L. (LONGSTRETH) BOYD, A.B., . . . . . Haverford College, Pa.  
 JAMES T. MCCLURE, B.S., . . . . . Philadelphia, Pa.  
 EMMA MCILVAIN, A.B., . . . . . Riverton, N. J.  
 EDWIN MITCHELL, JR., A.B. (B.L. and B.S.R., Sorbonne, Paris, 1877), . . . . . New York, N. Y.  
 LUCY R. (PRICE) MCINTYRE, A.B. (1880) . . . . . Philadelphia, Pa.  
 ISAAC G. SMEDLEY, B.S. (M.D., Hahnemann Medical College, 1879), . . . . . Philadelphia, Pa.  
 HERBERT W. SMITH, A.B. (and Harvard, 1878; Ph.D., Göttingen, 1884), . . . . . Bryn Mawr College, Pa.  
 MARY WILLITS, A.M., 1881 (M.D., Women's Medical College, Phila., 1881), . . . . . Philadelphia, Pa.  
 WILLIAM P. WORTH, B.S., . . . . . Coatesville, Pa.

### Class of 1877.

- JOSEPH T. BUNTING, B.S. (LL.B., Univ. of Pa., 1880), . . Philadelphia, Pa.  
 NORMAN B. CORSON, A.B., . . . . . Norristown, Pa.  
 EUDORA MAGILL, A.B., . . . . . Washington, D. C.  
 JESSE R. NORTON, A.B. (and Harvard 1879), . . . . . Ironton, Ohio.  
 CARROLL R. WILLIAMS, A.M., 1882 (LL.B., Univ. of Pa., 1880), . . . . . Philadelphia, Pa.  
 FLORENCE M. YEATMAN, A.B., . . . . . Norway, Pa.

### Class of 1878.

- CAROLINE E. (BURR) HALL, A.B., . . . . . Swarthmore, Pa.  
 MAYBELL P. DAVIS, A.B., . . . . . Newtonville, Mass.  
 HOWARD DAWSON, A.M., 1882, . . . . . Boston, Mass.  
 TACY A. (GLEIM) DUNNING, A.B., . . . . . Seattle, Wash.  
 WILLIAM J. HALL, B.S., . . . . . Swarthmore College, Pa.  
 MARY P. (HALLOWELL) HOUGH, A.M., 1881 (M.D., Women's Medical College, Phila., 1881), . . . . . Ambler, Pa.  
 CHARLES A. HAWKINS, A.B., . . . . . York, Pa.  
 WILLIAM PENN HOLCOMB, M.L., 1882 (Ph.D., Johns Hopkins Univ., 1886), . . . . . Swarthmore College, Pa.  
 REBECCA S. (HUNT) WHITE, A.M., 1881 (M.D., Women's Medical College, Phila., 1881), . . . . . Lansdowne, Pa.  
 ANNA E. (JACKSON) MONAGHAN, B.L., . . . . . West Chester, Pa.  
 LLEWELLYN H. JOHNSON, B.S., . . . . . Orange, N. J.  
 EDWARD MARTIN, A.M., 1882 (M.D., Univ. of Pa., 1883), Philadelphia, Pa.  
 FRANCIS J. PALMER, B.S., . . . . . Brooklyn, N. Y.  
 ISRAEL ROBERTS, B.S., . . . . . Camden, N. J.  
 \*WILLIAM SEAMAN, C.E., 1884, . . . . . 1892.  
 C. HARRY SHOEMAKER, B.S., . . . . . Philadelphia, Pa.

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\*Deceased.

## Class of 1879.

ISAAC R. COLES, C.E., 1880, . . . . .	Brooklyn, N. Y.
WILLIAM P. FENDER, A.B., . . . . .	Williamsport, Pa.
WILLIAM LEA FERRIS, A.B., . . . . .	Denver, Col.
JOSEPH FITCH, A.B., . . . . .	New York, N. Y.
RUTH ANNA FORSYTHE, A.B., . . . . .	Philadelphia, Pa.
ELIZABETH (FURNAS) BOGARDUS, B.L., . . . . .	New York, N. Y.
P. LESLEY HOPPER, A.B., . . . . .	Havre de Grace, Md.
MARIE A. KEMP, A.M., 1892, . . . . .	Swarthmore College, Pa.
ELISHA E. LIPPINCOTT, B.S., . . . . .	Gallitzin, Pa.
*SAMUEL CRAIG McCOMB, C.E., 1882, . . . . .	1891.
CHARLES R. MILLER, B.L. (LL. B., Univ. of Pa., 1881), . . . . .	Wilmington, Del.
JOSEPHINE (WHITE) BRECKENS, A.B., . . . . .	Cheyenne, Wyoming.
ABIGAIL M. (WOODNUT) MILLER, B.L., . . . . .	Wilmington, Del.

## Class of 1880.

ANNA E. CONSTABLE, A.B., . . . . .	Philadelphia, Pa.
ARTHUR COLEMAN DAWSON, B.L., 1882, . . . . .	Chicago, Ill.
FLORENCE HALL, A.B., . . . . .	Swarthmore, Pa.
MYRA T. HILLMAN, A.B., . . . . .	Washington, D. C.
EMILY L. (HOUGH) SAVIDGE, A.B. (and Univ. of Minn., 1881), . . . . .	Boise City, Idaho.
EDWARD H. KEISER, M.S., 1881 (Ph.D., Johns Hopkins Univ., 1884), . . . . .	Bryn Mawr College, Pa.
GEORGINE (KURTZ) MUHLENBERG, A.B., . . . . .	Reading, Pa.
ALBERT R. LAWTON, A.M., 1885, . . . . .	New York, N. Y.
ROBERT J. MARCHER, B.S., . . . . .	Syracuse, N. Y.
THOMAS L. MOORE, A.B., . . . . .	Richmond, Va.
ELLEN S. (PRESTON) GRIEST, A.B., . . . . .	Cedarville, Va.
JOHN TURTON, B.S., . . . . .	New York, N. Y.
FANNIE (WILLETS) LOWTHORP, A.B., . . . . .	Trenton, N. J.
HENRY S. WOOD, C.E., 1883, . . . . .	San Francisco, Cal.

## Class of 1881.

MARTHA BUNTING, B.L., . . . . .	Philadelphia, Pa.
WILLIAM CANBY, JR., B.L., . . . . .	St. Paul, Minn.
CHARLES B. DORON, B.L., . . . . .	Rochester, N. Y.
MARY J. ELLIOTT, B.L., . . . . .	Philadelphia, Pa.
EMMA KIRK, B.L., . . . . .	Bryn Mawr, Pa.
GERTRUDE B. MAGILL, A.B., . . . . .	Boise City, Idaho.
EUGENE PAULIN, JR., A.B. (and Harvard, 1883), . . . . .	Bloomfield, N. M.
MARTHA E. (RHINOEHL) OSBORN, A.B., . . . . .	Philadelphia, Pa.
EDWARD C. RUSHMORE, B.S. (M.D., Columbia, 1885), . . . . .	Tuxedo Park, N. J.

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\* Deceased.

HENRY B. SEAMAN, C.E., 1884,	New York, N. Y.
CHARLES E. SHARPLESS, C.E., 1884,	Philipsburg, Pa.
ALVIN T. SHOEMAKER, B.L.,	New York, N. Y.
*I. BYRON THOMAS, B.S.,	1891.
ERNEST F. TUCKER, A.B. (M.D., Harvard, 1884),	Portland, Ore.

## Class of 1882.

WILLIAM LLEWELLYN BANER, A.B. (M.D., Columbia, 1885),	New York, N. Y.
EDITH B. BLACKWELL, A.B.,	El Mora, N. Y.
CHARLOTTE E. BREWSTER, M.L., 1886,	Philadelphia, Pa.
WILLIAM BUTLER, JR., A.B.,	West Chester, Pa.
C. HERBERT COCHRAN, A.B.,	Philadelphia, Pa.
BERTHA (COOPER) BREWER, B.L.,	Harrisburg, Pa.
P. FANNIE FOULKE, A.B.,	Philadelphia, Pa.
MARY E. GALE, A.M., 1891,	Germantown, Pa.
* SARAH S. (GREEN) PIERCE, A.B.,	1886.
MARGARET E. (HALLOWELL) POWELL, A.B.,	Lansdowne, Pa.
* ELIZABETH E. HART, B.L.,	1891.
ELIZABETH HASLAM, B.L.,	Philadelphia, Pa.
ELIZABETH M. OGDEN, B.L.,	West Chester, Pa.
CHARLES PALMER, A.M., 1885,	Chester, Pa.
* GEORGE C. PHILLIPS, B.S.,	1883.
HORACE L. ROSSITER, A.B.,	Girard, Pa.
CHARLES B. TURTON, B.S.,	New York, N. Y.
GERRIT E. H. WEAVER, A.B. (and Harvard, 1884), A.M., 1886,	Philadelphia, Pa.
EMILY E. (WILSON) LAWTON, A.M., 1885,	New York, N. Y.
EDGAR M. ZAVITZ, A.B.,	Coldstream, Ontario, Can.

## Class of 1883.

CHARLES A. BUNTING, B.S.,	Steelton, Pa.
* JOHN L. COCHRAN, B. S.,	1885.
EDGAR CONROW, B.L.,	Moorestown, N. J.
LYDIA S. (GREEN) HAWKINS, A.B.,	Media, Pa.
FLORENCE N. HANES, A.B.,	Woodstown, N. J.
ALICE W. JACKSON, A.B.,	Media, Pa.
WILLIAM A. KISSAM, JR., B.S.,	Little Neck, N. Y.
BERTHA (MATLACK) RUE, B.L.,	Camden, N. J.
GUION MILLER, A.M., 1888,	Washington, D. C.
S. DUFFIELD MITCHELL, A.B. (LL.B., Univ. of Pa.),	Pittsburgh, Pa.
EDWARD A. PENNOCK, A.B.,	Chatham, Pa.
GEORGE L. PENNOCK, B.S.,	Lansdowne, Pa.
CHARLES S. PYLE, B.S.,	Rising Sun, Md.

\* Deceased.

HELEN C. (PYLE) BUNTING, B.L., . . . . .	Steelton, Pa.
FREDERICK A. SEAMAN, JR., B.S., . . . . .	Madison, N. J.
ANNIE E. (TAYLOR) MILLER, M.L., 1888, . . . . .	Washington, D. C.
JAMES E. VERREE, B.L., . . . . .	Philadelphia, Pa.
EMMA (WEBB) PRICE, A.B., . . . . .	Philadelphia, Pa.

## Class of 1884.

HORACE L. DILWORTH, B.S., . . . . .	Locust Valley, N. Y.
REBECCA M. (DOWNING) BULLOCK, B.L., . . . . .	Germantown, Pa.
JOHN D. FURNAS, B.S., . . . . .	Waynesville, Ohio.
SARAH L. (HALL) STIRLING, A.B., . . . . .	Philadelphia, Pa.
HENRY J. HANCOCK, A.B. (LL.B., Univ. of Pa., 1886), . . . . .	Philadelphia, Pa.
EDWIN HAVILAND, JR., B.S., 1885, . . . . .	Salt Lake City, Utah.
MARY E. HUGHES, A.B., . . . . .	Philadelphia, Pa.
LAURA H. SATTERTHWAITE, A.B. (M.D., Women's Medical College, Phila., 1888), . . . . .	Trenton, N. J.
FREDERICK J. TAYLOR, B.S., . . . . .	Minneapolis, Minn.
MARY WILLITS, A.B., . . . . .	Wilmington, Del.

## Class of 1885.

MINNIE F. BAKER, AB., . . . . .	Washington, D. C.
ABIGAIL EVANS, A.B., . . . . .	Washington, D. C.
FREDERICK P. MOORE, A.B., . . . . .	New York, N. Y.
MARY D. (PRATT) RHODES, A.B., . . . . .	Bowdle, S. Dak.

## Class of 1886.

EMMA S. (BONES) STONE, B.L., . . . . .	New Brighton, N. Y.
ARTHUR D. COCHRAN, B.S., . . . . .	Westtown, Pa.
GEORGE J. FREEDLEY, B.S., . . . . .	Richmond, Va.
HELEN G. JOHNSON, A.B., . . . . .	Muncy, Pa.
ELLA MERRICK, A.B., . . . . .	Wrightstown, Pa.
EDGAR M. SMEDLEY, B.S., . . . . .	Media, Pa.
ROWLAND J. SPENCER, B.L., . . . . .	Portland, Ore.
MARTHA M. WATSON, A.M., 1891, . . . . .	Trenton, N. J.
C. PERCY WILCOX, B.S. (Ph. B., Yale Univ., 1887, LL.B., Univ. of Pa., 1891), . . . . .	Philadelphia, Pa.

## Class of 1887.

ALICE T. (BATTIN) LEWIS, A.B., . . . . .	Media, Pa.
HARRIET J. (COX) McDOWELL, B.S., . . . . .	New York, N. Y.
HORACE DARLINGTON, B.S., . . . . .	Darling, Pa.
HARRY B. GOODWIN, B.S., . . . . .	Bordentown, N. J.
ANNA M. JENKINS, A.B., . . . . .	Gwynedd, Pa.
THOMAS A. JENKINS, A.B. (Ph.B., Univ. of Pa., 1888), . . . . .	Johns Hopkins Univ.
FREDERICK K. LANE, B.S., . . . . .	Lancaster, Pa.

LINDA B. PALMER, A.B., . . . . .	West Chester, Pa.
HORACE ROBERTS, A.B., . . . . .	Fellowship, N. J.
ELIZABETH B. SMEDLEY, A.B., . . . . .	Willistown, Pa.
ELIZABETH B. (SMITH) WILSON, A.B., . . . . .	Lincoln, Va.
WILLIAM G. UNDERWOOD, B.S., . . . . .	Elizabeth City, N. C.

Class of 1888.

ALICE M. ATKINSON, A.B. (and Cornell Univ., 1889), . . .	Philadelphia, Pa.
THOMAS BROWN, B.S., . . . . .	Washington, D. C.
FRANK CAWLEY, C.E., 1891, . . . . .	Montreal, Can.
JESSIE L. COLSON, B.S., . . . . .	Daretown, N. J.
SADIE M. CONROW, A.B., . . . . .	Cinnaminson, N. J.
WILLIAM L. DUDLEY, B.S., . . . . .	New York, N. Y.
ROBERT P. ERVIEN, B.S., . . . . .	Clayton, N. M.
E. LAWRENCE FELL, B.S., . . . . .	Philadelphia, Pa.
JOYEUSE L. (FULLERTON) SWEET, A.B. (and Cornell Univ., 1889), . . . . .	Denver, Col.
EMMA (GAWTHROP) HAYES, B.S., . . . . .	West Chester, Pa.
ALICE HALL, A.B., . . . . .	Swarthmore, Pa.
P. SHARPLES HALL, B.S. (M. D., Hahn, Med. Col., Phila., 1891), . . . . .	Philade'phia, Pa.
WALTER HANCOCK, B.S., . . . . .	Minneapolis, Minn.
J. RUSSELL HAYES, A.B. (and Harvard, 1889), . . . . .	West Chester, Pa.
MARTHA P. (JONES) MILLER, A.B., . . . . .	Harrisburg, Pa.
T. MONTGOMERY LIGHTFOOT, M.S., 1890, . . . . .	Philadelphia, Pa.
HETTY C. (LIPPINCOTT) MILLER, A.B., . . . . .	Riverton, N. J.
ELLIS P. MARSHALL, JR., B.S., . . . . .	London Grove, Pa.
WILLIAM S. MARSHALL, B.S., . . . . .	Milwaukee, Wis.
AARON C. PANCOAST, B.S., . . . . .	San Antonio, Texas.
JESSIE PYLE, A.B. (and Cornell Univ., 1889), . . . . .	London Grove, Pa.
JOSEPH J. RHODES, B.S., . . . . .	Bellefonte, Pa.
KATHERINE M. RIDER, B.L., . . . . .	Brooklyn, N. Y.
WILLIAM H. SEAMAN, B.S., . . . . .	Glen Cove, N. Y.
AMELIA SKILLIN, A.B., . . . . .	New Milford, Conn.
CARROLL H. SUDLER, A.B., . . . . .	Philadelphia, Pa.
CHARLOTTE M. WAY, B.S., . . . . .	Tempe, Arizona.
ANNIE E. WILLITS, A.B., . . . . .	Syosset, N. Y.
ESTHER M. (WILLITS) FELL, B.L., . . . . .	Philadelphia, Pa.
FRANK P. WILSON, A.B., . . . . .	Locust Valley, N. Y.

Class of 1889.

JUSTIN K. ANDERSON, B.S., . . . . .	Estonoa, Va.
ALEXANDER G. CUMMINGS, JR., A.B., . . . . .	Columbia College.
HOWARD A. DILL, B.S. (and Mass. Inst. Tech., 1891), . .	Indianapolis, Ind.
HORACE B. FORMAN, JR., B.S., . . . . .	Graham, W. Va.
ELLIS M. HARVEY, B.S., . . . . .	University of Penna., Pa.

CLARA HAYDOCK, B.L., . . . . .	New York, N. Y.
J. CARROLL HAYES, A.B. (and Harvard, 1890), . . . . .	University of Penna.
JULIA HICKS, B.S., . . . . .	Old Westbury, N. Y.
MARY KIRK, A.B., . . . . .	New York, N. Y.
MARGARET J. LAURIE, A.B., . . . . .	Jericho, N. Y.
GEORGE A. MASTERS, B.S., . . . . .	Philadelphia, Pa.
ALICE S. PALMER, A.B., . . . . .	West Chester, Pa.
LOUELLA PASSMORE, A.B., . . . . .	Oxford, Pa.
FREDERICK B. PYLE, B.S., . . . . .	Washington, D. C.
RALPH STONE, A.B., . . . . .	Grand Rapids, Mich.
ELSIE D. STONER, B.L., . . . . .	Philadelphia, Pa.
WILLIS W. VAIL, B.S., . . . . .	Nuttallburg, W. Va.
JENNIE F. WADDINGTON, M.S., 1892, . . . . .	Horsham, Pa.

## Class of 1890.

ALVAN W. ATKINSON, A.B., . . . . .	Philadelphia, Pa.
SARA H. ATKINSON, A.B., . . . . .	Holicong, Pa.
GEORGE H. BARTRAM, B.S., . . . . .	Johns Hopkins Univ.
MARTHA M. BIDDLE, B.L., . . . . .	Riverton, N. J.
EMMA J. BROOMELL, B.S., . . . . .	University of Michigan.
MORRIS L. CLOTHIER, B.S., . . . . .	Wynnewood, Pa.
BEULAH W. DARLINGTON, A.B., . . . . .	West Chester, Pa.
EDWARD DARLINGTON, B.S., . . . . .	Media, Pa.
GEORGE ELLSLER, A.B., . . . . .	Vanderbilt University.
CAROLINE R. GASTON, A.B., . . . . .	Philadelphia, Pa.
ABBY M. HALL, A.B., . . . . .	Cornell University.
CLARA A. HUGHES, A.B., . . . . .	Lima, Ohio.
SAMUEL R. LIPPINCOTT, B.S., . . . . .	Cinnaminson, N. J.
WILLIAM D. LIPPINCOTT, B. S., . . . . .	Cinnaminson, N. J.
WILLARD L. MARIS, B.S. (and Univ. of Mich., 1892), M.S., 1892, . . . . .	Philadelphia, Pa.
ROBERT S. MCCONNELL, B.S., . . . . .	Philadelphia, Pa.
FRANCES E. OTTLEY, A.B., . . . . .	Austin, Texas.
*MARY D. PALMER, A.B., . . . . .	1892.
MARY E. PANCOAST, B.L., . . . . .	Marple, Pa.
JAMES W. PONDER, A.B., . . . . .	Wilmington, Del.
ELLIS B. RIDGWAY, B.S., . . . . .	Coatesville, Pa.
WALTER ROBERTS, A.B., . . . . .	University of Penna.
RICHARD C. SELLERS, B.S., . . . . .	Swarthmore, Pa.
FANNIE B. SMITH, A.B., . . . . .	Moorestown, N. J.
MARY F. SOPER, B.S., . . . . .	Jersey City, N. J.
R. BARCLAY SPICER, A.B., . . . . .	Baltimore, Md.
WILLIAM E. SWEET, A. B., . . . . .	Denver, Col.
ALICE W. TITUS, M.L., 1892, . . . . .	Old Westbury, N. Y.
MARY H. WHITE, A.B., . . . . .	Lansdowne, Pa.

\* Deceased.



## Class of 1891.

EMILY ATKINSON, A.B., . . . . .	Moorestown, N. J.
COSMELIA J. BROWN, B.L., . . . . .	Lincoln, Va.
LOUIS P. CLARK, B.S., . . . . .	Haverford College, Pa.
HANNAH H. CLOTHIER, B.L., . . . . .	Wynnewood, Pa.
EVA M. DANIELS, B.S., 1892, . . . . .	Charleston, W. Va.
ELIZA R. HAMPTON, A.B., . . . . .	Moorestown, N. J.
ISAAC O. HARPER, B.S., . . . . .	Baltimore, Md.
ESTHER HAVILAND, B.L., . . . . .	Lansdowne, Pa.
ELIZA G. HOLMES, A.B., . . . . .	Lansdowne, Pa.
JOHN W. HUTCHINSON, JR., B.S., . . . . .	New York City.
DORA LEWIS, B.L., . . . . .	Media, Pa.
*LUCY S. LIPPINCOTT, A.B., . . . . .	1891.
CHESTER P. MARTINDALE, B.L., . . . . .	Oxford, Pa.
HARRY L. McDONALD, B.S., . . . . .	Kansas City, Mo.
SARAH T. MOORE, B.L., . . . . .	Sandy Spring, Md.
A. MITCHELL PALMER, A.B., . . . . .	Stroudsburg, Pa.
ELLEN (PASSMORE) PYLE, B.L., . . . . .	Washington, D. C.
MARIANNA (SMITH) RAWSON, B.L., . . . . .	New York City.
WILLIAM C. SPROUL, B.S., . . . . .	Chester, Pa.
EDWARD B. TEMPLE, B.S., . . . . .	Ward, Pa.
KATHARINE L. TYLER, B.S., . . . . .	Philadelphia, Pa.
FRANCES M. WHITE, B.L., . . . . .	Lansdowne, Pa.
EDWARD C. WILSON, B.S., . . . . .	New York, N. Y.
M. LILIAN YARNALL, A.B., . . . . .	Chester, Pa.

## Class of 1892.

M. ELLEN ATKINSON, B.L., . . . . .	Buckingham, Pa.
M. ROSAMOND BAKER, A.B., . . . . .	Easton, N. Y.
BENJAMIN F. BATTIN, A.B., . . . . .	Swarthmore College.
JOSEPHINE BEISTLE, A.B., . . . . .	Germantown, Pa.
MARY E. BROOMELL, B.L., . . . . .	Jenkintown, Pa.
FREDERIC N. CARR, B.L., . . . . .	Charleston, W. Va.
HOWARD N. EAVENSON, B.S., . . . . .	Coeburn, W. Va.
HOWARD B. GREEN, B.S., . . . . .	Pedricktown, Pa.
CHARLES HART, B.S., . . . . .	Doylestown, Pa.
ANNIE HILLBORN, B.L., . . . . .	Swarthmore, Pa.
EDWARD A. JENKINS, B.S., . . . . .	Schenectady, N. Y.
PHEBE H. KETCHAM, B.S., . . . . .	Jericho, N. Y.
HENRY McALLISTER, JR., B.L., . . . . .	Colorado Springs, Col.
BERNARD S. McILVAIN, B.L., . . . . .	Darlington, Md.

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\* Deceased.

JOHN F. MURRAY, B.S., . . . . .	Wallingford, Pa.
ELLEN PYLE, A.B., . . . . .	London Grove, Pa.
MARY E. STEBBINS, B.L., . . . . .	Baltimore, Md.
JOSEPH J. WALKER, B.S., . . . . .	New Centreville, Pa.
WILLIAM E. WALTER, B.S., . . . . .	Philadelphia, Pa.
FLORENCE N. WOLVERTON, A.B., . . . . .	Quakertown, N. J.
MARY L. WOLVERTON, A.B., . . . . .	Quakertown, N. J.

## Honorary Degrees Conferred.

1888.

WILLIAM HYDE APPLETON, Ph.D. (A.B., Harvard, 1864; A.M., LL.B., Harvard, 1869), Professor of Greek and of English Literature.

SUSAN J. CUNNINGHAM, Sc.D., Professor of Mathematics and Astronomy.

1889.

ARTHUR BEARDSLEY, Ph.D. (C.E., Rensselaer Polytechnic Institute, 1867), Professor of Engineering and Director of Mechanic Arts.

ISAAC SHARPLESS, LL.D. (B.S., Harvard, 1873; Sc.D., Univ. of Pa., 1883), President of Haverford College.

1890.

OLIVIA RODHAM, A.B., late Assistant Librarian and Instructor in Botany.

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ON  
Trusts, Endowments, and Scholarships.

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